**ARI Research Note 2007-04**

# List of U.S. Army Research Institute Research and Technical Publications

## Fiscal Year 2006
## October 1, 2005 to September 30, 2006
## With Author Index and Report Titles and Subject Terms Index

**United States Army Research Institute**
**for the Behavioral and Social Sciences**

**August 2007**

## U.S. Army Research Institute for the Behavioral and Social Sciences

## A Directorate of the Department of the Army Deputy Chief of Staff, G1

**Authorized and approved for distribution:**

**PAUL A. GADE**
**Acting Technical Director**

**MICHELLE SAMS, Ph.D.**
**Director**

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## Foreword

The means of dissemination of the results of the U.S. Army Research Institute for the Behavioral and Social Sciences' (ARI) research and development/studies and analysis program vary widely depending on the type of work, the subject matter, and the sponsor/proponent. Typically, major findings with immediate policy and procedural implications are briefed to sponsors and proponents in order to enable timely implementation. This is followed up with complete documentation in the form of research and technical publications such as the ones listed here. In many cases, these documents represent the actual item handed off to the sponsor/proponent; this is particularly true of the Research Product category. In other cases, results are published in order to provide a complete record of the work done, and for future reference by researchers doing work in the same or similar areas.

This annotated list for FY 2006 provides an idea of both the depth and scope of the ARI research effort, and is a valuable resource for anyone interested in military psychology from either a scientific or operational perspective.

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# List of U.S. Army Research Institute Research and Technical Publications

## October 1, 2005 to September 30, 2006 With Author and Subject Index

### Introduction

The primary responsibility of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to maximize Soldier effectiveness. ARI accomplishes its mission through research and development in the acquisition, training, utilization, and retention of Army personnel. ARI research and products affect every Army mission with a human performance component.

As convenient references for qualified agencies and individuals and sponsors, ARI publishes lists of its technical and research publications. This issue of the publication list describes reports published during the period October 1, 2005, to September 30, 2006. It contains the abstract of each publication and the bibliographic information needed to identify a publication. The abstracts have been written, as far as possible, to describe the principal research findings in non-technical terms; however, technical language is used to communicate efficiently the details of research analysis. Author and subject indexing provide access to individual reports and topics.

**ARI Publications**

ARI publications are divided into separate, consecutively numbered categories appropriate to their intended audience and function. During fiscal year 2006, the following types of research and technical reports were issued by ARI:

**Technical Report (TR)**. A report of completed research intended primarily for dissemination to researchers.

Research Reports and Technical Reports published by the U.S. Army Research Institute for the Behavioral and Social Sciences are intended for sponsors of research and development (R&D) tasks and for other research and military agencies. Any findings ready for implementation at the time of publication are presented in the last part of the Executive Summary. Upon completion of a major phase of the task, formal recommendations for official action normally are conveyed to appropriate military agencies by briefing or memorandum.

**Research Report (RR)**. A report of completed research intended primarily for dissemination to military managers. Research Reports may deal with policy-related issues but typically do not include specific policy recommendations.

**Research Product (RP).** A user-oriented report intended to aid Army personnel. Examples are handbooks, manuals, and guidebooks.

**Special Report (S)**. A published report on a topic of special interest or in-house research intended primarily for dissemination to a select audience.

**Study Report (SR**). A published report briefly documenting studies and analyses.

Study Note (SN). A Study Note may contain or consist of technical text, computer code, diskettes or tapes with software, databases, codebooks or other documentation, raw data, data collection instruments, figures, tables, or any other products that do not concisely convey the import of a project but which must be archived for technical completeness.

**Research Note (RN)**. An interim, or final report typically of limited interest outside of ARI. It is filed with the Defense Technical Information Center (DTIC) but is not printed. Research Notes usually fall into one of the following categories:

- An in-house report that is of limited interest outside of ARI but is considered worth submitting to DTIC to be part of the Department of Defense (DoD) archive of technical documentation.

- An interim contract report that is of limited interest outside of ARI but is considered worth submitting to DTIC to be part of the DoD archive of technical documentation.

- A final contract report that is of limited interest outside of ARI but must be submitted to DTIC in accordance with Department of the Army regulations to close a contract.

- Material related to a Research Report or Technical Report (detailed tables, graphs, charts, sample forms, and sample training and testing materials) published as a Research Note to economize on printing and distribution.

- Contractor Report (CR). An interim, or final report by a contractor that meets contractual obligations but is not defined by the other report categories.

**ARI Distribution**

Initial distribution of these publications is made directly by ARI. Research Reports, Technical Reports, Study Reports, and Research Products are distributed primarily to operational and research facilities and their sponsors in DoD, to other interested Government agencies, and to DTIC; copies of some reports are also sent to libraries participating in the Documents Expediting Project. Research Notes, Study Notes, and Contractor Reports are filed with DTIC but are not published.

These publications are NOT available from ARI. DoD agencies and contractors can purchase paper copies or microfiche from:

Defense Logistics Agency
Defense Technical Information Center
8725 John J. Kingman Road, Suite 0944
Ft. Belvoir, VA 22060-6218
(703) 767-9030 or DSN 284-9030

Other Government agencies and the general public can obtain unclassified reports from:

U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650

**NOTE:** When requesting copies of these reports, use the DTIC accession number (AD - - - - - -) appearing in parentheses following the date of publication of each citation.

## Technical Reports

**TR 1170**
**More Efficient Live-Fire Rifle Marksmanship Evaluation**
Hagman, J.D. October 2005. (ADA441267)

To examine the feasibility of enhancing live-fire rifle marksmanship evaluation efficiency on the U.S. Army's 40-round standard qualification course, 2 groups of 90 One-Station-Unit Infantry trainees fired 20 rounds from the (foxhole) supported position followed by 20 rounds from the (prone) unsupported position. A significant ($p \leq .05$) positive linear relation between the total number of targets hit and the number of hits fired under each position was found for the formative group (Group 1) and confirmed for the cross-validation group (Group 2), with the former group's predictive models accounting for about two thirds of the variance in the total hit scores of both groups. Separate look-up-table tools were then developed from pooled group data for predicting first-attempt qualification at the Marksman, Sharpshooter, and Expert levels on the basis of either supported or unsupported position hit scores. Thus, rifle marksmanship proficiency, heretofore measured on the basis of 40 rounds, can be accurately predicted on the basis of only 20 rounds fired from either fighting position, although use of scores fired from the supported position is recommended until further research can be conducted. These tools can serve as easy-to-use diagnostic instruments for (a) identifying who should continue with qualification firing (e.g., those likely to qualify after firing 20 rounds) and who should not (e.g., those unlikely to qualify after firing 20 rounds), and (b) providing empirically derived performance standards needed in the future to assess rifle marksmanship proficiency during practice, as well as qualification, on the basis of 20 rather than 40 rounds, thereby saving both range time and ammunition without sacrificing evaluative integrity.

**TR 1171**
**Direct and Indirect Predictors of Social Competence in United States Army Junior Commissioned Officers**
Schneider, R.J., & Johnson, J.W. November 2005. (M001853)

Social competence is a critically important attribute for Army officers. An officer's social competence helps determine his or her ability to foster unit cohesion, mentor Soldiers, work effectively with individuals ranging widely in personality and work style, lead effectively when deployed to foreign countries, and handle new roles and assignments. The purpose of this research was to enhance understanding of what makes an officer socially competent. To that end, we formulated and tested a theory of the direct and indirect antecedents of social performance. Our key hypothesis, mediation of the social intelligence-social performance relationship by social knowledge, was supported for three out of five social performance dimensions. Another key finding was that a video-based social knowledge measure with a constructed response format, developed specifically for this project, showed substantial criterion-related validities with the same three social performance dimensions, and appears to be a viable means of measuring social knowledge.

**TR 1172**
**Longitudinal Examination of First Term Attrition and Reenlistment Among FY1999 Enlisted Accessions**
Strickland, W.J. November 2005. (ADA448564)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) developed Project First Term as a multi-year, longitudinal investigation of Soldier attrition and reenlistment among the cohort of recruits who joined the Army in Fiscal Year 1999. This effort allowed the evaluation of models of attrition and reenlistment intentions based on information contained in personnel records and collected from Soldiers who were surveyed as they entered the service, completed training segments, conducted duty assignments and left the service. These models explored reasons for attrition and reenlistment intentions, and suggested management strategies that might be employed to reduce attrition. This report provides a comprehensive description of the Project First Term methodology and analyses, and documents those results that are most relevant to the management of first term attrition.

**TR 1173**
**Understanding, Predicting, and Supporting Leader Self-Development**
Boyce, L.A., Wisecarver, M.M., & Zaccaro, S.J. December 2005. (ADA442647)

Systematic research was performed to better understand and support individual professional self-development. Over 400 junior-military leaders participated in detailed longitudinal research to test a structural model of leader self-development. Results provide a unifying framework for understanding the effects of individual characteristics on propensity for self-development. The model depicts a person with a mastery, work, and career-growth orientation as more motivated to perform leader self-development and more skilled at performing instructional and self-regulatory processes and therefore more likely to perform leader self-development. Further, results indicated that an organizational support tool moderated the actual performance of leader self-development activities. The implications of the results for self-development theory and for leader self-development in the Army are discussed.

**TR 1174**
**Army Enlisted Personnel Competency Assessment Program: Phase II Report**
Knapp, D.J., & Campbell, R.C. January 2006. (ADA443794)

In the early 1990s, the Department of the Army abandoned its Skill Qualification Test (SQT) program due primarily to maintenance, development, and administration costs. This left a void in the Army's capabilities for assessing job performance qualification. To meet this need, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) instituted a 3-year program of feasibility research related to development of a Soldier assessment system that is both effective and affordable. The PerformM21 program has two mutually supporting tracks. The first focuses on the design of a testing program and identification of issues related to its implementation. The second track is a demonstration of concept – starting with a prototype core assessment targeted to all Soldiers eligible for promotion to Sergeant, followed by job-specific prototype assessments for several Military Occupational Specialties (MOS).

The present report describes the second year of the PerformM21 program, in which a core examination was pilot tested and prototype test content was developed for five MOS. Further consideration was also given to program design features (e.g., delivery models, test frequency). Program design considerations include substantial attention to ways in which technology could be used to support the program and issues associated with the successful application of such tools.

**TR 1175**
**Virtual Environment Cultural Training for Operational Readiness (VECTOR)**
Deaton, J., Santarelli, T.P., Barba, C.A., & McCollum,C. February 2006. (ADB315125)

This report describes an SBIR contract to develop tools and methods which make virtual simulations a more effective means of training military personnel to interact effectively with people of other cultures. The purpose of the Phase II Virtual Environment Cultural Training for Operational Readiness (VECTOR) effort was to expand the set of cultural principles and lessons developed during Phase I, and incorporate them into an expanded training scenario. A training infrastructure was developed to support representation of culture-related behavior and dialog. Cognitive-model-controlled Non-Player Characters (NPCs) facilitate the delivery of cultural-familiarization training using a Commercial-Off-The-Shelf (COTS) game engine. Through the use of a canonical cognitive model of NPC behaviors using a cognitive architecture and a generic scripting language, cultural rules were encoded and mapped to scenario-specific NPC dialog and behaviors, thereby providing a set of virtual NPCs with which the trainee can interact. The NPC model contains an emotion model that modulates NPC dialog and actions based on underlying trainee actions and dialog. Future areas of VECTOR development include use of NPC emotional state to drive real-time facial animation of NPC avatars, encoding additional sets of cultural rule support, adding additional features to the NPC emotion model, and evaluation of training effectiveness.

**TR 1176**
**Do Army Helicopter Training Simulators Need Motion Bases?**
McCauley, M.E. February 2006. (ADA444549)

This report reviews the arguments and the evidence regarding the need for simulator motion bases in training helicopter pilots. It discusses flight simulators, perceptual fidelity, history of motion bases, disturbance versus maneuver motion, human motion sensation, and reviews the empirical evidence for the training effectiveness of motion bases. The section on training effectiveness reviews research from relevant sources, including: Military helicopter, military transport, commercial airlines, general aviation, fighter, and attack aircraft. In addition the author describes a Perceptual Control Theory approach to determining the information requirements for simulator-based training. The author concludes that there is a substantial body of data to support the training effectiveness of flight simulation in general; that there is virtually no evidence to support the training effectiveness of motion platforms; that motion contributes to in-simulator performance, particularly for experienced pilots; that motion cues may be beneficial for flight training in unstable aircraft and in tasks involving disturbance cues, although the evidence is weak; and that motion, noise, and vibration contribute to the realism of the simulation and, therefore, strongly influence the acceptance of a simulator by the pilot

community. There is no reliable evidence that a motion base prevents simulator sickness. Instructional design is more important than physical fidelity for training effectiveness.

**TR 1177**
**Evaluation and Refinement of a Screening Instrument for U.S. Army Recruiters: Noncommissioned Officer Leadership Skills Inventory**
Horgen, K.E., Kubisiak, U.C., Bruk-Lee, V., Connell, P.W., Penney, L.M., Borman, W.C., Pace, V.L., & White, L.A. March 2006. (ADA446708)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI), the U.S. Army Recruiting Command (USAREC), and their contractor, Personnel Decisions Research Institutes, Inc. (PDRI) have collaborated to implement the online administration of the Noncommissioned Officer Leadership Skills Inventory (NLSI). The NLSI measures skills and abilities related to NCO performance, including work orientation, interpersonal skills, and leadership capability. We also conducted research to validate the NLSI as a predictor of U.S. Army recruiter performance. The NLSI was successfully implemented as the first online recruiter testing administered in proctored settings worldwide. The validation results indicate that the NLSI predicts recruiter training attrition and recruiters' duty performance, as measured by individual recruiter production (e.g., signed contracts).

**TR 1178**
**Wargaming Effectiveness: Its Conceptualization and Assessment**
Cianciolo, A.T., & Sanders, W.R. February 2006. ( ADA447973)

Wargaming arguably is the most important collective activity occurring during operational planning. The need to understand, develop, and support battle staff wargaming has never been greater than it is now. The purpose of the present research was to determine the constructs that comprise effective wargaming and to explore methods for assessing these constructs. Cognitive task analysis was used to develop a conceptual framework for understanding the knowledge, skills, and other attributes that comprise the individual and team-related determinants, processes, and outcomes of effective wargaming. This framework was used as the basis for designing and implementing assessments. This initial exploration indicates that assessments derived from the wargaming conceptual framework can be feasible to administer and be reliable and valid assessments of their related psychological constructs. If extended and applied, this work could escort operations command and control teams into the future through a better understanding of how to develop and support their collective mission planning competence.

**TR 1179**
**Cooperative Interface Agents for Networked Command, Control, and Communications: Phase II Final Report**
Wood, S.D., Zaientz, J., & Lickteig, C.W. April 2006. (ADA455243)

Report developed under a Small Business Innovation Research Program 2000.2 contract for topic A02-024. This Phase II research advanced the Phase I approach to enable improved human-system interaction of mixed human and robotic elements for a company-sized unit. The

research reported here explored the utility of intelligent user interfaces for command and control tasks. A system prototype was developed using a virtual simulation environment, Soar-based intelligent agents, and a standards-based communications infrastructure. The prototype was evaluated by active duty Army officers using think aloud and situational awareness protocols conducted during a simulated urban mission. Results from the evaluation indicate that cooperative interface agents may be a practical technique for reducing command and control complexity, especially when manned and unmanned forces are integrated. Although this technique was demonstrated in a relatively simple simulation environment, further research is warranted to assess scalability and usability when applied to more knowledge-rich, real-world environments.

**TR 1180**
**An Interactionalist Analysis of Soldier Retention Across Career Stages and Time**
Chen, G., & Ployhart, R.E. April 2006. (ADA448543)

Ever since the Army became an All-Volunteer force, it has become critical to understand the factors influencing Soldiers' retention decisions. While the Army can implement short term solutions to problems resulting from turnover (e.g., increasing recruitment efforts), a long term solution requires an understanding of the dynamics driving the current levels of attrition. We propose an integrative, interactional model of retention, with links among general cognitive ability, situational variables (work characteristics and social support), job attitudes and motivation, and retention. In general, it is proposed that job attitudes and motivation mediate the impact of ability and situational variables on retention outcomes. Furthermore, the model considers the influences of career stage and changes over time in job attitudes and motivation on the retention process. Findings provided mixed support for the theoretical model of relationships. A unique contribution of our research over and above previous research is the longitudinal examination of several relationships as they unfold within Soldiers over time, and across different career stages. In particular, a key finding was that, irrespective of absolute levels of job attitudes (i.e., mean levels across time), more negative changes over time in job attitudes were associated with greater inclination to leave the U.S. Army.

**TR 1181**
**Nonverbal Communication and Aircrew Coordination in Army Aviation: Annotated Bibliography**
Katz, L.C., Kambe, G., Kline, K.F., & Grubb, G.N. June 2006. (ADA451484)

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The Army's Aircrew Coordination Training (ACT) programs emphasize the importance of verbal communications between crewmembers during mission execution. While this is a critical component of effective crew coordination, little attention has been directed towards the influence of nonverbal communication on effective crew coordination. Nonverbal communication transactions occur in the cockpit, but the extent to which they supplement verbal communication and their contribution to safe mission performance remain unclear. The report documents online research materials pertaining to (but not limited to) aircrew coordination, communication classification schemas, nonverbal communication (within aviation and other applicable fields), and team training. A review of the literature was conducted with the results compiled into a database containing the

relevant articles, and a categorization schema for future research in nonverbal communication in cockpit environments was recommended.

**TR 1182**
**Locus of Control, Attribution Theory, and the "Five Deadly Sins" of Aviation**
Stewart, J.E.II May 2006. (ADA452056)

The construct of Locus of Control (LOC) has been shown to predict a broad range of attitudes and behaviors, including risk taking and risk management, the performance of multiple tasks, distractibility, and the subjective perception of time. The above topics and many others have applicability to aviation settings. Over the past two decades, a few researchers have examined the relationship between LOC and hazardous attitudes, pilot errors, and other variables relating to safety and risk management. Most of this work has been correlational, and, in many instances, sample size has been quite small. The present paper reviews this work and other areas of research, which, though not specifically tied to aviation, have potential relevance to it. These include concepts from attribution theory, such as the optimism bias, in which people tend to attribute greater competency and lesser vulnerability to themselves than to similar others. Suggested applications of established and existing research in applied areas of social psychology are examined, with a focus on their relevance to aviation.

**TR 1183**
**Review of Aviator Selection**
Paullin, C., Katz, L.C., Bruskiewicz, K.T., Houston, J., Damos, D. July 2006. (ADA455302)

This report presents a review of research in the aviator selection and general personnel selection domains. That information was used to identify knowledge, skills, attributes, and other factors that should be included in a job analysis focusing on the Army aviator job. It was further used to develop a recommended strategy for an Army aviator selection battery.

**TR 1184**
**Instructional Features for Training in Virtual Environments**
Singer, M.J., Kring, J.P., & Hamilton, R.M. July 2006. (ADA455301)

The U.S. Army is committed to using interactive simulations to provide training for Soldiers. Virtual Environment (VE) and gaming technology may allow the U.S. Army to cost-effectively conduct planning, training, and rehearsal activities for both individual and collective dismounted Soldier tasks. The simulation technology also supports or provides stimuli that could enhance learning through instructional strategies, tactics, and instructional features. Research on effects of specific VE system characteristics and instructional applications must be performed to establish the benefits, problems, and guidelines for training and rehearsing complex activities and tasks using VE technology. This experiment investigated the training effect of instructional interventions in VE for training representative Soldier tasks. The research addressed Interrogative Coaching and an Attention-Direction Instructional Feature on initial skill acquisition of dismounted Soldier tasks incorporating basic recognition and decision skills. The results indicate that there is no initial learning advantage to the type of Attention Direction feature that was used, and that the Interrogative Coaching did seem to aid the skill acquisition of the more complex Bounding Overwatch task. The results are also being used to shape continued

investigations into the use of instructional strategies, tactics, and features in VE simulations for dismounted Soldier tasks.

**TR 1185**
**Personality Profiles of Experienced U.S. Army Aviators Across Mission Platforms**
Grice, R., & Katz, L.C. September 2006. (ADA457567)

To address the selection-related question, "What does the personality profile of the Army aviator of today look like?" 75 experienced Army aviators attending advanced leadership training completed the Revised NEO Personality Inventory, with scores depicting the five personality factors of: neuroticism, extraversion, openness, agreeableness, and conscientiousness. To address the classification-related question, "Are there certain personality profiles that distinguish among attack, scout, cargo, and utility pilots?" factor scores and their subsumed facet scores were compared across respondents representing the four mission platforms. Overall sample profiles and score differences among platforms are presented.

**TR 1186**
**Leader Experience and the Identification of Challenges in a Stability and Support Operation**
Nobel, O.B., Zbylut, M.L., Fuchs, D., Campbell, K., Brazil, D., & Morrison, E.
July 2006. (ADA455185)

This paper describes exploratory research that examined the impact of military leadership experience on how individuals frame a type of operating environment encountered by Soldiers deployed to the Middle East. Sixteen captains and 25 cadets from the United States Military Academy watched a film depicting a food distribution operation in Afghanistan and then indicated the key leadership challenges and decisions that they believed were present in the scenario. Content analysis resulted in 21 dimensions of leadership activities and four higher-level categories representing tactical decision-making, managing relationships with subordinates and other Soldiers, situational challenges, and handling local civilians and warlords. Consistent with previous research on expert-novice differences, experienced leaders placed significantly more emphasis on tactical and leadership concerns than did inexperienced cadets. Officers' answers to open-ended questions also displayed more integrative thinking than cadets. Contrary to expectations, however, officers and cadets did not differ with respect to how they framed cultural issues embedded in the film. Results of the paper have implications for how instructors can help build the expertise of their students.

**TR 1187**
**Year 2 Assessment of the Unit Focused Stability Manning System**
Smith, M.D., & Hagman, J.D. July 2006. (ADA456217)

This is the second in a planned series of reports on research with U.S. Army Alaska's 172d Stryker Brigade Combat Team (SBCT) to identify (a) the impact of personnel stability (under the Unit Focused Stability [UFS] manning system) on small-unit cohesion (cohesiveness), (b) factors that might enhance or detract from (are predictive of) this impact, and (c) lessons learned for enhancing future UFS implementation efforts. Questionnaire responses revealed that cohesion dropped over the 20-month garrison phase of the unit's 36-month lifecycle, the drop was

steeper for vertical (Soldier to leader) and organizational (Soldier to unit/Army) than for horizontal (Soldier to Soldier) cohesion, and leader effectiveness and learning environment consistently contributed to the best predictive models of cohesion at each of four measurement periods. Analysis of unit records revealed that turbulence (e.g., unprogrammed gains/losses and duty position changes) was also positively related to cohesion, as long as the former occurred early in the unit's lifecycle and was not excessive. Interviews and focus group discussions revealed that primary UFS implementation concerns were the perceived negative impact of stability on junior officer and midlevel noncommissioned officer career development, confusing initial UFS guidelines, the untimeliness of their dissemination, and the inconsistency of their application. Results were interpreted to suggest that (a) stability under UFS must be coupled with effective leadership and a supportive learning/training environment in order to foster small-unit cohesion, (b) some personnel turbulence early on in a stabilized unit's lifecycle may actually be beneficial to vertical and organizational cohesion, and (c) future UFS implementation should benefit from Army efforts to address identified lessons learned, especially those impacting career development.

**TR 1188**
**Videogame-Based Training Success: The Impact of Trainee Characteristics – Year 2**
Orvis, K.A., Horn D.B., & Belanich, J. July 2006. (ADA457396)

Personal computer (PC)-based videogames are emerging as an increasingly popular training tool in the U.S. Army. The present research represents a follow-up investigation to Orvis, Orvis, Belanich, and Mullin (2005) with regards to the impact of trainee characteristics in videogame-based training environments. Specifically, this follow-up research examines prior videogame experience, videogame self-efficacy, and goal orientation as antecedents that maximize trainee motivation, as well as other learner choices and outcomes, in PC game-based training. In this research, participants played a first-person-perspective videogame that began with a single-player section to introduce game-specific tasks, followed by a multi-player section where participants formed small teams to conduct several collaborative missions. Prior to and after the training exercise, participants completed online questionnaires. This research extends Orvis et al. (2005) by demonstrating that these trainee characteristics, as a set, had a positive impact on trainee motivation to use the training game, trainee satisfaction with the training experience, ease in using the training game interface, team cohesion, metacognitive strategies utilized during training, and time spent engaging in the training game. The results of this research provide useful information to training game developers and instructors using videogames as training tools.

**TR 1189**
**U.S. Army Aviator Job Analysis**
Kubisiak, C., & Lawrence C. Katz, L.C. August 2006. (ADA457239)

This report describes the job analysis performed by The U.S. Army Research Institute for the Behavioral and Social Sciences Rotary Wing Aviation Research Unit (ARI RWARU). It was part of a larger research project to develop and validate a selection system for U.S. Army rotary wing aviators, called Selection Instrument for Flight Training (SIFT). The activities performed by Army aviators and the personal attributes required to perform those activities were examined.

This job analysis helped identify predictor measures subsequently used to validate the prototype SIFT test battery.

## Research Reports

**RR 1842**
**Computer-based Approaches for Training Interactive Digital Map Displays**
Dyer, J.L., Singh, H., & Clark, T.L. September 2005. (ADA440171)

Five computer-based training approaches for learning digital skills were compared using OSUT and IOBC Soldiers. The pure exploratory condition was the least effective for all Soldiers, particularly those in OSUT. The traditional lesson and exercise combination was effective for all as was the guided-exploratory, problem-solving condition. The condition where Soldiers could select their own mode(s) of training produced different training strategies on the part of the OSUT and IOBC Soldiers. IOBC Soldiers used more consistent and fewer training strategies than did OSUT; this condition was preferred by IOBC. OSUT Soldiers benefited from the more structured environments that provided performance feedback. IOBC Soldiers did not necessarily require exercises, but did benefit from the lesson information and the capability to control their training strategy. The findings reinforce the need to tailor training to Soldiers when the target population is diverse, and common skills and knowledge must be acquired. The results suggest that giving the same training to all is not the most efficient, nor the most effective, nor the most motivating.

**RR 1843**
**Multi-Echelon Distributed Army Leaders' Information Support Training (MEDALIST) II: Prototype Development and Recommendations for Future Training**
Graves, C.R., Jenkins, S.N., Flynn, M.R., Campbell, C.H., & Shadrick, S.B. October 2005. (ADA439895)

In the *Multi-Echelon Distributed Army Leaders' Information Support Training* (*MEDALIST*) project, researchers examined communication requirements essential to the conduct of battle command in the emerging operational environment and designed a flexible, scalable approach for training those and related tasks in a distributed training environment. The MEDALIST approach comprises a structure of communication drills with varying difficulty levels and scenario settings, targeted training audiences, a distributed performance coaching model, and specifications for a PC-based system that supports delivery of the training. This follow-on to the MEDALIST effort examined the potential to apply the MEDALIST approach to the training of information support activities in the emerging Future Force and Stryker Brigade Combat Team environments. Project objectives included analyzing and modifying the MEDALIST approach to address performance conditions and requirements unique to Future Force and Stryker environments. This report describes the background, objectives, activities, products, and conclusions of the research effort. Intended for Future Force and Stryker Brigade Combat Team training and training system designers, it offers recommendations in the areas of training systems, training processes, and MEDALIST utilization.

**RR 1844**
**Training Adaptable Leaders: Lessons from Research and Practice**
Mueller-Hanson, R.A., White, S.S., Dorsey, D.W., & Pulakos, E.D. October 200. (AD A440139)

In the post 9/11 environment and the subsequent Global War on Terrorism, the need for adaptable leaders in the military is increasingly apparent. The development of adaptive leaders has become a high priority for the Army; however, current research and practice related to adaptability is still in its infancy. The purpose of this paper is to summarize current theory and research related to developing adaptable leaders. A discussion of the importance of adaptability in the Army's leadership is presented followed by an exploration of the concept of adaptability. Next, characteristics of adaptable leaders are reviewed along a continuum of trainability. The core of this paper addresses training adaptability in terms of institutional, operational, and self-development interventions. Within each of these areas, practical guidance is provided for designing effective training and development programs, and a summary of areas for future research is presented.

**RR 1845**
**Deployment Consequences: A Review of the Literature and Integration of Findings into a Model of Retention**
Wisecarver, M., Cracraft, M., & Heffner, T. January 2006. (AD A442677)

Deployment activity for the armed services increased during the 1990s and the deployment tempo continues to be high. This makes understanding the consequences of these deployments for manpower and personnel areas such as retention particularly important. This report summarizes research regarding the effects of deployments, and proposes a framework for understanding the effects of deployments on retention using an existing model of organizational turnover. Results suggested that either too few or too many deployments can have a negative effect on retention, and that while number and length of deployments are important, other characteristics of a deployment such as the perceived fairness of decisions can play an even more important role in Soldier and family reactions to deployments. Survey data has also consistently indicated that the amount of time a Soldier is separated from his/her family is one of the top reasons that Soldiers consider leaving the Army. The effect of deployments on other personnel areas such as morale, finances, and readiness, has been equivocal. We argue that it is imperative to develop a model of retention that demonstrates the role of deployments in the decision to reenlist. We suggest a model and justify the proposed links based on the literature.

**RR 1846**
**Training Impact Analysis for Land Warrior Block II**
Dyer, J.L., Centric, J., & Dlubac, M. January 2006. (ADA443795)

A Training Impact Analysis was conducted to support the Analysis of Alternatives (AoA) for the Land Warrior (LW) Block II system. Four equipment alternatives were compared; three varied the basis of issue for the LW: down to squad leader, to fire team leader, and to all Soldiers. Training time, number of instructors and LW systems, and ammunition were estimated for each alternative. The greatest training impact was with the alternative where all Soldiers had

a system, due to the substantial increase in number of individuals to be trained as compared to alternatives that involved only leaders. Existing Infantry courses increased in length as core subjects and prerequisite skills could not be deleted from the programs of instruction. Marksmanship and land navigation training were the two individual tasks that had the greatest impact due to the high proficiency level desired by the Infantry School and constraints on throughput created by restrictions in training areas/ranges. The results were included in the February 2005 AoA briefing to the Study Advisory Group. The analysis provides a solid base for estimating future training impacts if the LW system is modified, additional data on training times are obtained, or programs of instruction are changed.

**RR 1847**
**Preliminary Evaluation of a Novel Simulation-Based Tool for Training Rapid Decision-Making Skills**
Christ, R.E. January 2006. (ADA443863)

This report describes an initial evaluation of a desktop training tool named the Simulated Field Exercise (SimFX). SimFX is different from other desktop trainers in that it uses a discrete, outcome-driven simulation for training leader decision making rather than a simulation driven by inputs from the virtual operating environment. The training scenarios used in SimFX exploit the cognitive realism that occurs when the leader is engaged in an interactive, branching storyline. The SimFX simulation advances the leader from one decision point to the next, and therefore focuses the leader on making decisions using available information rather than on experiencing the subtleties of a virtual environment. The SimFX was evaluated using the results from a questionnaire completed by 19 participants in a hands-on workshop that was conducted to introduce SimFX to a broad cross-section of trainers and training developers at Fort Benning, Georgia. The findings of this preliminary evaluation of SimFX suggest that it may be both an effective and an efficient means to train information-processing and decision-making skills. Equally important, the SimFX tool has the capability to be an aid in the development of the cognitive skills required for both the current force and for the envisioned future force environment.

**RR 1848**
**Approaches to Managing Future Training**
Campbell, C.H., Campbell, R.C., Grossman, J.R., Graves, C.R., Flynn, M.R. February 2006. (AD A444537)

This report explores issues related to managing adaptable training in the future, when Future Combat Systems (FCS), embedded training (ET) capabilities, and a full range of personnel management tools are the norm for daily operations. The report first discusses the issues associated with management of future training and related current and emerging Army initiatives, FCS documentation, and previous research findings. The five principal issues concern the vision and expectation for future training; the tools and information that would be needed; how the tools and information could be provided using automated channels; what level of automation users will accept; and the nature of near-term solutions. The concept for a future training management system, is described through use cases that detail the use of specific tools and information. Based on analysis of the use cases, technology needs are described in five areas: massive database systems,

bi-directional reach (both accessing and sending needed information), sophisticated self-learning search engines, performance support systems and computer-generated simulations powered by artificial intelligence, and super-broad bandwidth. We then present a set of detailed recommendations, including priorities, interim solutions for near-term development, and directions for further research and development in both training and technology realms.

**RR 1849**
**Global Teams: Enhancing the Performance of Multinational Staffs Through Collaborative Online Training**
O'Dea, A., Ross, K.G., McHugh, A, Phillips, J.K., Throne, M.H., & McCloskey, M., & Mill, J.A. March 2006. (AD A469425)

This research report describes the research, development, and evaluation of a web-based, scenario-based training tool, designed to support the development of expertise in coordination and decision making for multinational forces in coalition operations. The tool allows discussion and collaborative problem solving between at least two coalition partners, with the support of a facilitator. The project team used the operational experience of officers from English-speaking nations (U.S., U.K., Canada, and Australia to identify the cognitive challenges inherent in coalition operations and to drive the development of context-rich scenarios. Evaluation of the training highlighted six critical factors which impact the effectiveness of the training. 1. Clarify the learning objectives in advance. 2. Emphasize the problem solving and coordination aspects of the exercise. 3. Capitalize on the opportunity for interaction by allowing partners to interact over discussion and problem solving. 4. Set the training at the appropriate level. 5. Use an experienced facilitator to direct the training. 6. Tie tool functionality to the learning strategy. Overall, the training was shown to improve participants' awareness of, and ability to respond to, the key themes of coalition coordination. The tool provides an easy-to-implement and cost-efficient means for coalition partners to train in a distributed environment.

**RR 1850**
**Training Lessons Learned and Confirmed From Military Training Research**
Wampler, R.L, Dyer, J.L., Livingston, S.C., Blankenbeckler, P.N., Centric, J.H., & Dlubac, M.D. April 2006. (ADA446697)

The report summarizes lessons learned regarding military training that were accumulated over a six-year period of training research. These lessons include new insights regarding training as well as lessons that reinforce basic principles of training and learning. The findings are based on the authors' observations and assessments of training as well as training experiments. Much of the training involved new and emerging training technologies. Some of it focused on training with futuristic equipment. Live, virtual, and constructive training environments were observed. The report integrates the lessons learned and insights regarding training that were documented in prior reports, as well as those that were not officially documented. These lessons should be useful as new equipment is developed and training programs are designed. The report is intended for use by military trainers, training designers, and training developers in institutional training environments and in operational units.

**RR 1851**
**Recruitment and Accession of Special Forces Warrant Officers**
Ferro, G., Wisecarver, M., White, S.S., & McPherson, W.A. April 2006. (AD A446700)

Special Forces (SF) has had difficulty filling the available training slots in the SF Warrant Officer Basic Course (WOBC). Research was required to analyze factors related to the accession and retention of SF WOs. Four specific objectives were identified that include describing the available target population, describing SF Non-commissioned Officers' (NCOs) opinions regarding the WO position, identifying barriers to recruitment, and providing recommendations regarding future accessions. Analyses indicated that the percentage of SF NCOs that meet the WOBC accession requirements is very small – possibly as low as 2-6% of the SF NCO population. In addition recruitment into the WO program may be hampered by a lack of awareness of the requirements; 52% of survey respondents were not aware of requirements for accession to WOBC. Results also indicated a continued negative view of the SF WO pay structure, with 47% of respondents ranking "fixing pay" as the most important thing the Army could do to encourage NCOs to apply. Finally, results indicated about half of the NCOs have indifferent or negative perceptions of the WO position. Recommendations are provided and recent initiatives that address some of these issues are discussed.

**RR 1852**
**Improving Troop Leading Procedures at the Joint Readiness Training Center**
Evans, K.L., & Baus, E.A. MAJ April 2006. (AD A450444)

The present investigation sought to measure the quality of troop leading procedures (TLPs) being performed at the Joint Readiness Training Center (JRTC) and to determine the extent to which a job performance aid, the TLPs Guide, might improve the TLPs performance of leaders there. TLPs performance was measured by observer/controllers using the TLPs Checklist, a tool developed specifically for the investigation. Over the course of eight unit rotations at JRTC, 723 checklists were collected and analyzed. On 34 of 39 performance measures, leaders who had access to a TLPs Guide during their missions were found to conduct better TLPs than leaders who did not have access to the Guide. Group differences were found to be statistically significant on 8 of the measures obtained. The efficacy of the TLPs Guide was most apparent when leaders performed the third step in the TLPs process, making a tentative plan.

**RR 1853**
**A Near Term Approach to Embedded Training: Battle Command Visualization 101**
Fisher, J.M, Heiden, C.G., Gossman, J.R., Campbell, C.H., Breidenbach, M.G., & Lickteig, C. April 2006. (ADA449032)

Design and development of embedded training (ET) has been hampered by technical barriers and a lack of viable training product exemplars. This report describes an innovative training product developed to complement the Army's ongoing ET efforts for the Future Force and provide realistic training solutions for the Current Force wherever deployed. An exemplar product called Battle Command Visualization (BCV) 101 was developed to train many of the basic skills required for employing networked sensors to "see" the battlefield by completing a set of progressive and gated skill development and reinforcement exercises. Expert performance of

the exercises on a prototype command and control ($C^2$) system linked to virtual simulation was recorded to generate high-fidelity source materials for interactive multimedia instruction (IMI) at IMI Levels 1 and 2. The source materials were augmented by teaching points, tactical and reference materials, and quizzes. A surrogate learning management system was developed to control exercise sequence, interaction, quiz administration, training feedback, and remediation. Limited formative evaluation was also conducted. The primary finding of the research is an innovative approach to training that markedly extends Army's ability to deliver the high-fidelity training required by the Current and Future Force.

**RR 1854**
**Behaviorally Anchored Rating Scales for the Assessment of Tactical Thinking Mental Models**
Phillips, J.K., Shafer, J., Ross, K.G., Cox, D.A., & Shadrick, S.B. June 2006. (ADA452068)

Report developed under a Broad Agency Announcement (BAA) # W74V8H-04-C-0018. An ongoing need exists in the Army to enhance combat leaders' tactical thinking skills. In conjunction, measurement techniques must be developed to assess tactical thinking skills. This report documents an effort to develop a standardized and reliable assessment tool for purposes of evaluating training applications, diagnosing individuals' levels of cognitive proficiency, and examining the impact of advanced battle command technologies on user cognition. Four Tactical Thinking Behaviorally Anchored Rating Scales (T-BARS) were developed. They enable researchers to measure cognitive proficiency along critical dimensions of tactical thinking by coding behaviors that are observable in the context of training sessions, exercises, or experiments. Themes of tactical thinking identified in the Think Like A Commander program formed the basis of T-BARS. The Dreyfus & Dreyfus (1986) stage model of cognitive skill acquisition guided construct development for five levels of tactical thinking proficiency within each scale. Interviews were conducted with Army officers to elicit patterns of thinking and behaviors in tactical exercises. Interview data informed the behavioral descriptors generated to populate the levels of cognitive performance within the T-BARS. Scale development occurred iteratively with interrater reliability testing. The finalized T-BARS assessment tool is accompanied by a user guide to support its application.

**RR 1855**
**Army Green: Training Non-Tactical Problem Solving by Platoon Leaders**
Hinkle, R.K., Karrasch, A.I., & Thomas J. Burke, T.J. July 2006. (ADA454772)

Platoon leaders (PL) are often required to resolve non-tactical problems on which they have received little to no formal training. Many of these non-tactical problems are atypical, undocumented, and require judgmental resolution by PLs with limited experience as they take command of their first platoon. In addition, the unpredictable nature of military operations including non-tactical situations requires PLs to repeatedly adapt their thinking to resolve unfamiliar, and sometimes unforeseeable, problems and concerns. Therefore, the 16th Cavalry Regimental Commander requested Technical Advisory Service to develop non-tactical training for new PLs. In response, methods for theme-based training used to train adaptive thinking in tactical situations from the Think Like a Commander (TLAC) program were adapted for non-tactical situations and the development of a training program called Army Green. Through a

series of interviews and surveys, 231 captains and lieutenants (LT) identified values, problems, and situations relevant to the non-tactical issues that confront PLs. As a result, 10 themes and 10 problem-laden vignettes along with expert solutions were developed for Army Green. An Army Green training assessment with 12 LTs resulted in promising, but preliminary findings that indicated a few hours of theme-based discussion of problems embedded in non-tactical vignettes improved LTs' responses to subsequent problems. The report concludes with a brief set of recommendations to help refine and implement Army Green training.

**RR 1856**
**Development of the Reactive Planning Strategies Simulation (REPSS)**
Sanders, W.R., Fultz, C.S., Sharp, N.K. July 2006. (ADA454775)

The present report describes the development of the Reactive Planning Strategies Simulation (REPSS), and the results of initial experimentation comparing the performance of distributed and co-located groups. The REPSS presents a simplified collaborative planning task where a commander and three teams organize relief mission convoys to four towns as part of a stability and reconstruction operation. The research supports the Leader Adaptability Army Training Objective (ATO) which seeks to provide prototype computer-based methods and tools to rapidly train and sustain fundamental leadership and battle command skills required as increasingly complex command and control technologies and networks become operational. With regard to the planning process, the comparison of co-located and distributed groups showed clear differences in verbal and text-messaging communications. Automated measures of team planning synchronization and quantity of goods delivered provided some evidence that the co-located groups were better at achieving the goal of maximizing the delivery of required supplies consistently across the four towns. A majority of participants (93%) indicated that the REPSS planning exercise could be useful in command group training.

**RR 1857**
**The Implementation of User Juries in the Development of Future Systems**
Throne, M.H. July 2006. (ADM001911)

As the Army develops and fields the Future Combat Systems, one of the methods that will be implemented to ensure this complex system of systems meets Soldiers' needs is user juries. For the purposes of this report, a user jury is defined as a group of experts or potential users who review an evolving system (or product) either individually or as a group, evaluate the system with guidance from a facilitator, and provide structured feedback to developers for system improvements. The primary objective of this research effort was to gather the information available on user juries and develop some guidelines for implementation. Information was gathered through reviews of the literature, as well as interviews with training developers. Then, in an initial attempt to apply the guidelines to user jury research, a prototype website dedicated to user juries was developed (see attached CD). Ideas for future research are also provided.

**RR 1858**
**Tailored Exercise Planning and Feedback for Digitized Units**
Leibrecht, B.C., Lockaby, K.J., Perrault, A.M., Strauss, C.P., & Meliza, L.L. July 2006. (ADB320414)

This report stems from research to extend the reach of a digital proficiency training toolkit designed for units equipped with Army Battle Command System (ABCS) devices, including Force XXI Battle Command Brigade and Below (FBCB2). This report describes efforts to tailor these training packages to fit changes in ABCS systems. Long term care and maintenance of the toolkit will require periodic revisions of the products in response to change in systems and TTPs. This report also describes efforts to tailor the toolkits to fit the digital proficiency levels of units. The toolkit was expanded to include tools enabling low cost estimates of whether the digital proficiency levels of FBCB2-equipped units and battle staffs are at the basic, medium, or high levels and observation guides tailored to fit and verify estimated proficiency levels.

**RR 1859**
**A Simulation-based Tool to Train Rapid Decision-Making Skills for the Digital Battlefield**
Archer, R., Brockett, A.T., McDermott, P.L. Warick, W., & Christ, R.E. August 2006. (ADA457395)

This report was developed under the Army Phase II Small Business Innovation Research (SBIR) program. The Simulated Field Exercise (SimFX) tool was designed to help small unit leaders make good decisions while immersed in an ever widening array of information technologies. Rather than focus training on the specifications and capabilities of new technologies, we provide students with computer-based scenarios that force them to resolve ambiguous or contradictory input from remote sensors, fuse disparate sources of information, filter information, and manage resources. SimFX exploits the cognitive realism that comes from engaging a trainee in a branching story in which the trainee must make a series of decisions that ultimately affect how the story plays out. The consequences and feedback are predicated not just on the alternative chosen but on the information sources used to make the decision. Thus, emphasis is placed on the student's ability to collect and use information. SimFX consists of two components: the Player presents a scenario to the trainee and the Author allows training developers to create story-based scenarios or deliberate practice exercises. SimFX is a low-cost, easy to use training tool that has been favorably received by potential users in the Army training community

**RR 1860**
**What Squad Leaders Want to Know in Battle**
Evans. K.L. August 2006. (ADA457179)

The Battlefield Information Questionnaire was developed to measure the relative importance of 88 different types of battlefield information to squad leaders in four combat situations: planning, assaulting an objective, consolidating and reorganizing on the objective, and defending the objective from counterattack. This questionnaire was then administered to a group of 106 non-commissioned officers, each having combat experience as a squad leader. The types of information they most wanted to know, and least wanted to know, were highly consistent across

combat situations. Averaged across situations, the ten types of information most important to squad leaders in battle were: location of threat personnel, vehicles, and weaponry; casualty collection point location; ammunition remaining; location of personnel in their squad; location of units in contact with the enemy; personnel location in adjacent friendly units; their own location relative to other personnel; location of mines, obstacles, booby traps, and improvised explosive devices; availability of supporting fires; and direction of movement for enemy personnel.

**RR 1861**
**Sexual Harassment and Assault: Research Review and Recommendations**
Fitzgerald, L., Ormerod, A.J., Collinsworth, L., Lawson, A., Lytell, M., Perry, L.A., Wright,C.V., & Babin, N.E. July 2006. (AD B320314)

The purpose of this review is to assemble and summarize literature on sexual harassment and sexual assault with a focus on the military environment. Although major research efforts have been undertaken to understand these issues, much of this work is scattered throughout various sectors of the literature, and few systematic reviews exist to guide policy makers. In particular, the relationship between harassment and assault is almost completely unexamined, despite the theoretical likelihood of linkages between them. Furthermore, the review covers research on the complex measurement issues associated with documenting harassment and assault. Finally, the summary discusses literature on the major facilitating factors, and victim and perpetrator characteristics that have been found in the research.

## Research Products

**RP 2006-01**
**Select21 Experimental Selection and Classification Instruments**
HumRRO October 2005. (ADA439891)

Transformation of the U.S. Army into the Future Force involves changes to missions, systems, and organizational structures. To realize the full potential of transformation, the Army must have the means to select and to assign high quality individuals who, as first-term Soldiers, can meet the training and operational demands emerging with transformation to the Future Force.

This report is part of a series of research product reports that provide to potential users information on products resulting from a project titled *New Predictors for Selecting and Assigning Future Army Soldiers (Select21).* The goal of Select21 is to (a) develop and validate new performance predictor measures and (b) propose use of the most promising measures as a foundation for an entry-level selection and classification system adapted to the demands of the 21st century.

This report describes the experimental selection and classification instruments. In the Select21 project, Soldiers' scores on these instruments will be linked to their scores on job performance measures to evaluate how well these instruments might forecast future job performance. Instruments that show promise for predicting job performance could supplement the Army's current selection and classification test battery (i.e., the ASVAB, the Armed Services Vocational Aptitude Battery) in the future.

**RP 2006-02**
**MEDALIST: Communication Drills for Distributed Coaching**
Graves, C.R., Jenkins, S.N., Flynn, M.R., & Shadrick, S.B. October 2005. (ADM001843)

In the *Multi-Echelon Distributed Army Leaders' Information Support Training* (*MEDALIST*) project, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) examined communication requirements essential to the conduct of battle command in the emerging operational environment and designed a flexible, scalable training approach for training those and related tasks in a distributed training environment. The MEDALIST approach comprises a notional structure of communication drills with varying difficulty levels and scenario settings, targeted training audiences, a distributed performance coaching model, and specifications for a PC-based system that supports delivery of the training. The effort examined the potential to apply the MEDALIST approach to the training of information support activities in the emerging Future Force and Stryker Brigade Combat Team environments. This product provides the training-support materials for the MEDALIST exercises. A companion ARI Research Report is available that describes the background, objectives, activities, products, and conclusions of the MEDALIST work.

**RP 2006-03**
**Training Vignettes and Installation Guide for the Battle Captain Advanced Team Training (BCATT) Training Support Packages**
McElroy, W., Dodge, M., Davidson, G. & Kambe, G. January 2006. (ADM001921)

This U.S. Army Research Institute Research Product was developed in conjunction with the US Army Armor Center and School to address the requirement to train battle captains to work together as a team to accomplish collective tasks during the execution phase of missions. The training packages contained in the accompanying three compact disks (CDs) are designed to be instructorless, i.e., Instructors, Observer/Controllers are not required. However, implementation of the training does require installation of the software on four off-the- shelf networked desktop computers. An installation guide is provided on Server CD 1. Following installation, there is a self-paced tutorial which explains the concepts underlying the training approach and the tasks to be trained. All the road to war information and operations orders necessary to execute each of the forty vignettes is provided. A guided self-paced team performance review follows each vignette. Initial research has shown these training packages to be challenging and effective for a broad range of experienced battle captains and novices alike.

**RP 2006-04**
**Captains in Command**
Wilson, B.E., Holder, L.D., Kiser, R.D., Fullen, T., Hobson, R., & Shadrick, S.B. August 2006. (ADM202075)

As it transforms to the Future Force, the Army faces challenges in training adaptive leaders for network-enabled, distributed operations. This product demonstrates the results of a research effort to advance the adaptive training methodology using instructorless coaching techniques to train Army captains as adaptive battlefield decision makers. It represents an instructorless prototype training support package designed for vignette-based exercises. Sophisticated 3D characters and environment were used to elaborate expert considerations after viewing tactical vignettes. The product establishes a training baseline for investigating key dimensions of instructorless training programs, with emphasis on coaching, adaptive thinking, and deliberate practice.

**RP 2006-05**
**User's Guide for Tactical Thinking Behaviorally Anchored Rating Scales**
Phillips, J.K., Ross, K.G., & Shadrick, S.B. June 2006. (ADA452069)

Phillips, Product developed under Broad Agency Announcement (BAA) # W74V8H-04-C-0018. An ongoing need exists in the Army to enhance combat leaders' tactical thinking skills. In conjunction, measurement techniques must be developed to assess tactical thinking skills. This product provides a user's guide for using the Tactical Thinking Behaviorally Anchored Rating Scales (T-BARS) to measure an individual's cognitive proficiency in tactical thinking. It describes the use of four scales that enable researchers to measure cognitive proficiency along critical dimensions of tactical thinking by coding behaviors that are observable in the context of training sessions, exercises, or experiments. Themes of tactical thinking identified in the Think

Like A Commander program formed the basis of T-BARS. The user's guide provides information on making assessments and establishing interrater reliability.

**RP 2006-06**
**Simulated Field Exercise (SimFX) Tool**
Brockett, A.T., McDermott, P., & Warwick, W. July 2006. (ADM202059)

This compact disc was developed under the Army Phase II Small Business Innovative Research (SBIR) program. The executable program for the Simulated Field Exercise (SimFX) tool, contained in this disc, was designed to provide small unit leaders with training and practice for making rapid decisions while immersed in an ever widening array of information technologies. SimFX consists of two components. The Player software presents students with computer-based scenarios that force them to resolve ambiguous or contradictory input from remote sensors (human or technical), fuse the disparate sources of information, filter information, and manage resources. The Author software allows training developers to modify and create story-based scenarios or deliberate practice exercises. SimFX is a low-cost, easy to use training tool that will run on any Microsoft Windows-based operating system. It has been received favorably by potential users in the Infantry training community. A companion research report, *A Simulation-based Tool to Train Rapid Decision-Making Skills for the Digital Battlefield*, describes the rationale and approach used to develop SimFX. Two additional Research Products, *SimFX Player User Guide and Tutorial* and *SimFX Author Guide and Tutorial*, provide detailed descriptions of the two SimFX components. The User Guides and Tutorials are available in this CD.

**RP 2006-07**
**SimFX Player User Guide and Tutorial**
Archer, R., Brockett, A.T., McDermott, P.L., and Warwick, W. July 2006. (ADB321862)

This Research Product was developed under the Army Phase II Small Business Innovation Research (SBIR) program. The Simulated Field Exercise (SimFX) tool was designed to help small unit leaders make good decisions while immersed in an ever widening array of information technologies. Rather than focus training on the specifications and capabilities of new technologies, SimFX provides students with computer-based scenarios that force them to resolve ambiguous or contradictory input from remote sensors, fuse disparate sources of information, filter information, and manage resources. SimFX exploits the cognitive realism that comes from engaging a trainee in a branching story in which the trainee must make a series of decisions that ultimately affects how the story plays out. The consequences and feedback are predicated not just on the alternative chosen but on the information sources used to make the decision. Emphasis is placed on the student's ability to collect and use information. SimFX consists of two components: the Player presents a scenario to the trainee and the Author allows a training developer to create and modify story-based scenarios or deliberate practice exercises. SimFX is a low-cost, easy to use training tool that has been favorably received by potential users in the Army training community.

**RP 2006-08**
**SimFX Author User Guide and Tutorial**
Archer, R., Brockett, A.T., McDermott, P.L., and Warwick., W. July 2006. (ADB321970)

This Research Product was developed under the Army Phase II Small Business Innovation Research (SBIR) program. The Simulated Field Exercise (SimFX) tool was designed

to help small unit leaders make good decisions while immersed in an ever widening array of information technologies. Rather than focus training on the specifications and capabilities of new technologies, SimFX provides students with computer-based scenarios that force them to resolve ambiguous or contradictory input from remote sensors, fuse disparate sources of information, filter information, and manage resources. SimFX exploits the cognitive realism that comes from engaging a trainee in a branching story in which the trainee must make a series of decisions that ultimately affects how the story plays out. The consequences and feedback are predicated not just on the alternative chosen but on the information sources used to make the decision. Emphasis is placed on the student's ability to collect and use information. SimFX consists of two components: the Player presents a scenario to the trainee and the Author allows a training developer to create and modify story-based scenarios or deliberate practice exercises. SimFX is a low-cost, easy to use training tool that has been favorably received by potential users in the Army training community.

**RP 2006-09**
**New Skills Training Plan for Map Functions and Passage of Lines on a Soldier System**
Blankenbeckler, P.N., Livingston, S.C., Dlubac, M.D., Riffe-Seckinger, N.C., & Swinson, D.N., & Dyer, J.L. July 2006. (ADA452855)

The training products in this report bridge the gaps between training digital and non-digital forces. The new skills plans present ways to teach digital skills associated with new computer-based technologies, but also relate these skills to current procedures and techniques used without these technologies. Consequently, these products help Soldiers learn and retain the new digital skills, and also to retain the associated non-digital skills required to perform the same tasks. The two tasks selected to serve as the prototypes for these training plans are map functions and the conduct of a passage of lines as the stationary unit. Map functions involve a series of individual skills and tasks. The passage of lines as a stationary unit is an amalgam of individual skills and tasks, and collective tasks, and as such is a collective task. This particular collective task focuses at platoon level and below. Included in the plans are a series of increasingly difficult exercises as well as assessment procedures.

RP 2006-10 Cancelled

**RP 2006-11**
**Vignette-Based Training for Junior Leader Teams: Operation Enduring Freedom**
Bell, J., DeSario, G., McElroy, G.W., Sanders, W.R. July 2006. (ADM202062)

Research conducted by the U.S. Army Research Institute has yielded effective methods for rapid training development that were applied to the development of Afghanistan training vignettes. This report presents the materials prepared to provide vignette-based unit training for junior leader teams consisting of platoon leaders and their subordinates on the tasks of combat operations for counter-insurgency (cordon and search; mounted convoy; and patrol). Materials were also developed to provide company commanders and platoon leaders with training to increase proficiency in negotiating with host nation leaders. The training vignettes were prepared specifically to address training needs inherent in the contemporary operational environment of U.S. Army forces deployed to Afghanistan in support of Operation Enduring Freedom. The training materials were produced in a flexible digital format that can be delivered

as paper products (briefing slide format) or computer slide show, and distributed through email. This format allows units to easily update their training materials to integrate lessons learned during their deployment.

**RP 2006-12**
**Enhancing Warrior Ethos in Soldier Training: The Teamwork Development Course**
Klein, G., Salter, M., Riccio, G., & Sullivan, R. August 2006. (ADA457418)

The product described is the result of research that explored the concept and definition of Warrior Ethos, in an effort to facilitate its application for Soldiers during initial training and throughout their military careers. The Warrior Ethos tenets were divided into component attributes and behaviors; the product described here provides an example of a potential venue for Warrior Ethos training during the basic training program and includes train-the-trainer materials that help to identify Warrior-like behaviors. The venue is the Teamwork Development Course (TDC), an obstacle-like course conducted at all Basic Combat Training locations. Executed during the early weeks of training, the course encourages teamwork and the growth of problem-solving skills. The TDC references Army values and although the activities are difficult and challenging, they are not particularly stressful. The Warrior Ethos-based Training Support Package and its accompanying After Action Review behavioral checklist provide an expansion of the benefits of the TDC by identifying and reinforcing Warrior Ethos behavior. The concepts are shown in relation to the TDC; they are applicable to other venues as well.

**RP 2006-13**
**Training Support Package Determination Methodology**
Krueger, R.A., & Olson, D.W. September 2006. (ADM001900)

This Research Product describes a methodology for specifying needs for future training support packages. It includes a series of templates and associated questions to be completed and answered by training developers. Application of the methodology results in a list of training support packages, described in terms of the echelons and tasks to be trained. The methodology also results in prioritization of the training support packages to be produced

## Special Reports

**S 64**
**Fiscal Year 2006 Program**
U.S. Army Research Institute. January 2006. (ADA470700)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) conducts the Army's personnel, training, and leader development research and development (R&D) program. This program is part of the Department of Defense (DoD) Human Systems Technology Area. ARI is under the operational control of the Headquarters Department of the Army, Deputy Chief of Staff, G-1, but responds to broad Army requirements.

We are the only Army behavioral and social science laboratory whose mission is personnel, training, and leader development research, technology development, and analysis. As such, ARI provides critical non-materiel solutions to improve Soldier, leader, and unit performance. Why is this important when most of the Army's S&T program is focused on materiel solutions for future mission success? The answer to this is that materiel solutions, although critical components to the Army's future success, will not by themselves win wars or keep the peace. Soldiers and leaders – the human component of warfighting – will. The human operators, fighters, and decision makers are the essential element in mission success now, and will remain a crucial element in the successful transformation to the joint expeditionary force of the future. To achieve organizational transformation, the Army is making major changes and more are planned over the next few years such as shifting from a division-based, heavy force to a brigade-based, modular force that is more powerful, flexible, and maneuverable; changing personnel procedures to stabilize units for longer periods of time; rapidly changing operational requirements to meet mission demands; and changing the process and procedures for training and education that will be more responsive to the pace of change and the availability of resources. The full success of these changes, in a volatile, high threat environment will require innovative personnel, training, and leader development knowledge products and technologies to improve human performance and to streamline the way the Army trains and educates the force. Currently, Soldiers and leaders are experiencing a very high operational tempo. The stress of fighting the global war on terrorism while simultaneously dealing with transformational changes in organizational structure and procedures, operational requirements, accelerating fielding of new systems and technologies, and a growing range and complexity of missions are challenging individual Soldiers, units, and their leaders. ARI's R&D program is providing the scientific basis to meet these challenges.

## Study Reports

**SR 2006-01**
**Development of a Prototype Self-Assessment Program in Support of Soldier Competency Assessment**
Keenan, P., & Campbell, R. October 2005. (AD A440050)

Soldiers in the 21st century must possess the knowledge, skills, and other attributes to perform effectively in complex technical, information-rich environments. This study, *Development of a Prototype Self-Assessment Program in Support of Soldier Competency Assessment*, was conducted as a counterpart to the U.S. Army Research Institute for the Behavioral and Social Sciences' (ARI) Performance Measures for 21st Century Soldier Assessment (PerformM21). PerformM21 is a 3-year feasibility effort to identify viable approaches for an operational performance assessment system for Army enlisted personnel.

In this study, the researchers identified the design and content of a self-assessment system (SAS) that would (a) help Soldiers feel confident about testing, (b) inform Soldiers about the junior noncommissioned officer (NCO) promotion system, and (c) familiarize Soldiers with the duties and responsibilities of NCOs. Information about best practices in the field of self-assessment/test preparation including what is done in the other Armed Services, academia, and the test industry was used to develop a prototype SAS that would explore the realm of test preparation functions, actions, and items that a typical Soldier would encounter during this phase. The prototype SAS reflects PerformM21 test parameters; it is web-based, targeted to E4 Soldiers, and focuses on the Army-wide core assessment.

**SR 2006-02**
**The Army Training and Leader Development Panel Report: Consolidation Phase**
Fallesen, J.J., Keller-Glaze, H., Aude, S.N., Mitchell, D.D., Horey, J.D., Gramlich, A., & Morath, R. November 2005. (ADB314354)

This is the final report of Consolidation, Phase 5 of the Army Training and Leader Development Panel (ATLDP). This report describes major trends in the data collected in the previous four phases (Officer, NCO, Warrant Officer, and Army Civilian) and offers recommendations for future Army training and leader development. The Consolidation Phase goes beyond the previous four phases by identifying issues that are similar and different between cohorts and emphasizing systemic problems that affect multiple cohorts. The Consolidation Phase also takes into greater consideration future leader requirements in making recommendations. Data were collected from Soldiers and civilians between 2000 and 2003. Several events have occurred since that have impacted how the Army will train and develop leaders in the future. Events such as Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) and initiatives such as stabilization have been considered in making the Consolidation recommendations. Findings and recommendations in this report are organized into six areas: future leader requirements, culture and climate, Army education systems, self-development, operational environment, and leader's role in development. In total, there are seven strategic recommendations and 29 enabling recommendations.

**SR 2006-03**
**Advanced Individual Training Command and Cadre Perceptions and Attitudes Concerning the Training Soldiers Receive in Basic Combat Training**
Marshall-Mies, J., Lupton, T., Hirose, C., Elczuk, C., Turner, A., & Brady, E. January 2006. (ADM201990)

This study was conducted by the U.S. Army Research Institute for Behavioral and Social Sciences (ARI) and Swan Research, Inc. (the Contractor) on behalf of the U.S. Army Accessions Command, Center for Accessions Research. It describes the development and implementation of qualitative and quantitative measures to understand the perceptions and opinions of the Army's Advanced Individual Training (AIT) Command and Cadre concerning the quality of training received by Soldiers in Army Basic Combat Training (BCT). The study gathered data from almost one thousand Command and Cadre across 17 AIT locations via interviews, focus groups, and an on-line survey. Overall, 44.1% of the survey respondents are satisfied with the training Soldiers receive in BCT; and 34.4% consider the Soldiers to be well prepared to succeed in AIT. On the negative side, 28.0% are unsatisfied with this training; and 21.1% believe the Soldiers are poorly prepared to succeed in AIT. When assessing specific areas of training, however, their evaluations varied widely from the very positive to the very negative. These AIT Command and Cadre also provided feedback on administrative and other issues that impact Soldiers' success in AIT and made recommendations for improving BCT.

**SR 2006-04**
**Evaluating the Contributions of Virtual Simulations to Combat Effectiveness**
Jones, P.N., & Mastaglio, T.W. March 2006. (AD A448151)

The problem under investigation was the evaluation of virtual simulations to combat effectiveness for two separate populations: US Army, heavy combat units returning from Operation Iraqi Freedom and US Army National Guard heavy combat units. The research used opinion data collected via questionnaires delivered to battalion through platoon leadership. Questionnaires were delivered via physical interviews and written survey and also through web delivered surveys. Individual opinions were aggregated based upon duty position and other demographic factors to develop collective opinions, which allowed analysts to make supported observations. Results are reported separately for Iraqi Freedom units and National Guard units. Significant findings include: virtual simulations are effective but are seen as a substitute to live training; users would prefer higher operational area modeling in virtual trainers so they can use them more as theater/mission rehearsal tools; and integration of virtual simulations into unit training strategies is a learned skill and requires more attention. Finally, this research demonstrates the viability of using web-based collection methods in further investigations.

**SR 2006-05**
**Evaluation of the U.S. Army Training & Doctrine Command (TRADOC) Warrior Transition Course (WTC)**
Campbell, R.C., Ford, L.A., & Ervin, K.S. April 2006. (AD A448189)

This was an assessment of the Warrior Transition Course (WTC) training program designed to provide initial entry training under the Blue to Green (B2G) recruiting program. The

analysis was performed by ARI at the request of the U.S. Army Training and Doctrine Command (TRADOC). The assessment had four objectives: (1) provide a detailed overview of the WTC program and its participants, (2) prepare electronic databases of survey data, (3) conduct a comparative analysis of WTC and basic combat training (BCT), and (4) provide results of the assessment to include recommendations. A case study method was used and input was gathered by observations, interviews, surveys, and documentation reviews. Ten specific findings about the course were provided along with selected recommendations. Findings were: (1) Most WTC attendees were prior service, not transfers on active duty. (2) BCT and WTC were not comparable activities. (3) There was significant Soldier dissatisfaction in WTC. (4) Soldiers were not accurately informed about WTC prior to attendance. (5) Physical demands predominate WTC issues. (6) WTC was too short. (7) Leadership training was a concern. (8) Administrative issues detracted from training. (9) Use of Drill Sergeants was controversial. (10) WTC will change when the course is transferred.

**SR 2006-06**
**Pilot Study to Examine Training Eligibility Standards**
Williams, E.S., & Peter M. Greenston, P.M. June 2006. (ADA455120)

The aim of this pilot study is to examine training enlistment standards utilizing Army Training Requirements and Resources System (ATRRS) training data which records individual-level training events for all MOS, but is limited to pass / fail outcomes. Specifically, we seek to investigate the tradeoffs between training eligibility and Advanced Individual Training (AIT) completion brought about through lowering / raising minimum enlistment training standards, and to develop methodologies which can be utilized to assist school proponents in assessing the appropriateness of their Aptitude Area (AA) cut scores. For the initial effort in this pilot, the 50 MOS investigated belonged to a handful of school proponents who expressed an interest in the objectives of this study, plus a few additional ones recommended by Army Accessions Command. Subsequently, an additional 30 MOS that promised sufficient numbers of (failure) observations were also included. The authors specify and estimate binary logistic regression models of pass / fail training outcomes over the 2001 – 2004 period. Training outcome is estimated as a function of AA governing composite, Soldier demographic, and component membership variables. The estimated models are then applied to the larger Army enlisted contract population to examine the policy tradeoffs. For select MOS, the policy analyses are examined more closely using risk analysis simulation methods.

**SR 2006-07**
**Effects of Motion on Skill Acquisition in Future Simulators**
Bowen , S.A., Oakley, B.P., & Barnett, J.S. May 2006. (ADA452066)

In order to develop recommendations for the use of motion in ground vehicle simulators, a thorough literature review was conducted. Literature on motion cueing theories as well as basic and applied research in the use of motion in simulation was examined. A particular focus was paid to research on the effects of motion cueing on transfer of training from both ground vehicle and aircraft simulators. From the information gathered in the literature reviews on motion cueing, recommendations for the use of motion in ground vehicle training simulation were developed. In addition to motion cueing factors, theories and applied research on motion

sickness were also investigated. As motion sickness holds the potential to significantly affect performance both in a simulator and in an actual ground vehicle, it was considered important to develop recommendations for the use of simulator motion to mitigate these effects. Guidelines were developed from the information gathered in this review for the use of simulator motion in training to diminish the effects of motion sickness.

**SR 2006-08**
**Incorporating Lessons Learned into the Army Competency Assessment Prototype**
Moriarty, K.O., Knapp, D.J., & and Campbell, R.C. June 2006. (ADA452065)

The PerformM21 research project addressed the Army's need to adapt to the requirements of operations in the 21st century. The *Incorporating Lessons Learned into the Army Competency Assessment Prototype* (Lessons Learned) analyses is a subpart of the PerformM21 work and is discussed in this report. Specifically, Lessons Learned is concerned with incorporating tasks and knowledges that emerged from recent deployments into the standard Army-wide Common Tasks hierarchy. To this end, a prototype job analysis survey and test blueprint were developed, resulting in a process that is transportable to an operational program. Lessons learned sources were located, and challenges noted with them were discussed (e.g., locating Army-approved doctrine). Finally, new items were developed based on this lessons learned content. These items, with further review and modification, could be used in an operational assessment.

**SR 2006-09**
**Assessment of the FY 05 Basic Officer Leader Course (BOLC) Phase II: Instructor Certification Program (ICP) and Single-Site Initial Implementation**
Pleban, R.J., and Tucker, J.S., Centric, J.H., Dlubac, M.D., & Wampler , R.L. August 2006. (ADA460363)

This report documents the BOLC II cadre Instructor Certification Program (ICP) and the single-site initial implementation conducted during FY 05. BOLC entails a three-phase process of officer initial entry training. After Phase I (pre-commissioning), all lieutenants receive a common core program (Phase II) focusing on leadership, counseling, and fieldcraft in a hands-on, field intensive environment. Phase III focuses on branch-specific officer training. Training observations from the ICP indicated that a disproportionate amount of time was spent on individual skill training versus training the cadre on how to teach, coach, and mentor lieutenants. Critical soft skills training was either abbreviated or not conducted. The training focus of the single site implementation mirrored that of the ICP. The lieutenants' survey ratings showed significant improvements in how prepared they felt they were to lead a platoon in executing the Warrior battle drills and their confidence in executing the Warrior tasks following BOLC II. However, important gaps in leadership training were identified. Survey results showed that the BOLC II training did not meet the lieutenants' expectations of the course. Recommendations based, in part, on these findings, have resulted in noticeable changes in the next ICP and the two-site initial implementation. ARI will continue to monitor these changes and their effects on both cadre preparation and the quality of leadership training received by lieutenants during BOLC II.

## Study Notes

**SN 2006-01**
**Concurrent Validation of the Noncommissioned Officer Leadership Skills Inventory (NLSI) for U.S. Army Drill Sergeants**
Kubisiak, U.C., Horgen, K.E., Connell, P.W., Xu, X., Borman, W.C., White, L.A., & Young, M.C. November 2005. (AD A443021)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and its contractor Personnel Decisions Research Institutes, Inc. (PDRI) have been conducting research to validate the Noncommissioned Officer Leadership Skills Inventory (NLSI) as a predictor of Drill Sergeant performance. The NLSI measures skills and abilities related to NCO performance, including work orientation, interpersonal skills, and leadership capability. The overall goal is to expand the NLSI into a Noncommissioned Officer classification test to identify high potential Soldiers at the E-4/5/6 levels for several occupational specialties, including Drill Sergeants. The research conducted for this study consisted of a preliminary, small-sample validation of the current NLSI as a predictor of Drill Sergeant success as measured by performance ratings. Results indicate that the NLSI demonstrates preliminary, statistically significant predictive validity for Drill Sergeants. Further, this research supports the use of the NLSI as an operational test for NCO MOSs and duty assignments beyond recruiter. Future research should also guide potential refinement of the NLSI as a classification tool for multiple Army NCO positions.

**SN 2006-02**
**Cancelled**

**SN 2006-03**
**Evaluation of Alternative Aptitude Area (AA) Composites and Job Families for Army Classification: A Reply**
Johnson, C.D., & Zeidner, J. March 2006. (AD A445466)

Differential assignment theory (DAT) and research findings bearing on initial personnel classification from a number of simulation experiments, based on large samples of Soldiers with both operational and experimental test scores and MOS specific performance scores, is drawn upon in a critical review of recent HumRRO research (ARI Study Report 2005-1). The report being reviewed recommends using nine job families with corresponding best-weighted test composites that have been corrected for restriction in range to the recruit population and then converted to Army standard scores. This is the second tier of the two tiered classification system (TTCS) proposed by Zeidner and Johnson. The HumRRO authors primarily examine differential validity and validity coefficients with standard errors to reach the conclusion that there is no need for the first tier of the TTCS. A number of issues on which there is disagreement with the HumRRO authors are discussed.

**SN 2006-04**
**Update of U.S. Army Research Institute's Officer Personnel Research Data Bases for 2003 and 2004**
Young, W.Y., Mackin, P., & O'Brien, K. April 2006. (AD B318155)

This document describes the procedures performed to add 2003 and 2004 personnel data to the Longitudinal and Core data sets of the Army Research Institute's Officer Longitudinal Research Data Base (OLRDB) and to the Core Data Set of the Officer Standardized Educational Testing Data Base (OSETDB). These data sets were designed for research purposes and contain historical and current data on U. S. Army commissioned officer personnel. The OLRDB contains career history data primarily from the 1979 through 2004 Officer Master Files (OMF) and the Separation Officer Master Files (SOMF). The OSETDB contains academic measures for officer personnel commissioned between 1980 and 1990. In particular, the testing data includes Scholastic Aptitude Test (SAT) scores from the Educational Testing Service and American College Test (ACT) scores from the American College Testing Program for academic years 1973 through 1985.

This document also summarizes development of a new standard Win32 application to update the existing data access utility.

**SN 2006-05**
**Assessing the Value of Army Continuing Education System Programs and Services to the Army's Current and Future Force**
Ramsberger, P.F., Sticha, P.J. July 2006. (AD A455104)

The Army Continuing Education System (ACES) received significant personnel cuts over Fiscal Years 2006 and 2007. Although previous studies demonstrated the positive effects of participation in ACES programs for both individual Soldiers and the Army as a whole, they did not address the direct relationship between ACES personnel and outcomes such as accelerated promotions and higher retention. This report summarizes analyses that investigated whether such a connection exists and the likely impact of reducing ACES personnel by nearly half. In addition to examining prior research on the impact of ACES, a database was developed containing a wide range of information such as programs offered and participation rates by installation. Analyses resulted in several noteworthy results, including: (a) online programs offered through eArmyU increase overall ACES participation; (b) the personnel cuts will result in a Soldier-counselor ratio of nearly 2000:1, almost double the ratio that existed in FY 2005 and far exceeding Army guidance in this regard; (c) the proposed cuts will lower participation rates and predictions indicate this will result in an increase in attrition, the cost of which will negate any savings realized through reduced numbers of ACES personnel.

## Research Notes

**RN 2006-01**
**Station Commander Job Analysis and Preliminary Test Validation Results**
Horgen, K.E., Kubisiak, U.C., Connell, P.W., White, L.A., Bruk-Lee, V.B., Penney, L.M., Borman, W.C., & Kaufman, J.D. October 2005. (ADA440172)

This report describes the important performance requirements of the Army recruiting station commander job and reviews the personal characteristics likely to predict station commander performance. Two measures of station commander performance were developed, the Station Commander Performance Rating Scales and the Station Mission Achievement Index. These two measures were used as criteria in a preliminary validation effort to predict station commander performance using personality, biodata, and other measures. This report describes the results of, and provides recommendations based on this preliminary validation work.

**RN 2006-02**
**Influences of Work-Life Support of Officers' Organizational Commitment and Negative Work-Family Spillover**
Gibson, J.L., & Tremble, T.R. April 2006. (ADA446707)

When Soldiers leave military service, the loss decreases the personnel available for operational missions. Consequently, a continued concern of the Army is to understand processes leading to Soldier retention and attrition. Given the large body of research showing that employees' organizational commitment is derived from their perceptions of the extent to which the employer is committed to and supportive of them, assistance with balancing the demands of work and family life is a promising intervention for improving Soldier experiences and increasing retention in the Army. This research examined the continuance of junior Army officers as it relates to benefit use, social support perceptions, and control over work-family issues. Hypotheses were based on principles of social support and the need for personal control. Results provided partial support for the process by which benefits are construed as support, which increases affective commitment, and the process by which benefits increase personal control, which decreases negative work-family spillover. Interestingly, benefit use was positively related to increased control over the work-family interface *and* increased resource dependence, which is characterized by dependence on others for their support and may be construed as surrendering some degree of control. Implications of these findings are discussed.

**RN 2006-03**
**List of U.S. Army Research Institute Research and Technical Publications**
U.S. Army Research Institute for the Behavioral and Social Sciences. May 2006. (ADA452089)

The primary responsibility of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to maximize Soldier effectiveness. ARI accomplishes its mission through research and development in the acquisition, training, utilization, and retention of Army personnel. ARI research and products affect every Army mission with a human performance component.

As convenient references for qualified agencies and individuals and sponsors, ARI publishes lists of its technical and research publications. This issue of the publication list describes reports published during the period October 1, 2005, to September 30, 2006. It contains the abstract of each publication and the bibliographic information needed to identify a publication. The abstracts have been written, as far as possible, to describe the principal research findings in non-technical terms; however, technical language is used to communicate efficiently the details of research analysis. Author and subject indexing provide access to individual reports and topics.

**RN 2006-04**
**Reanalysis of Validation of Tool to Assess Readiness for Online Learning**
Le, H.A., Sager, C.E. & Young, M.C. January 2006. (ADA452076)

Data originally collected to validate a questionnaire measuring Soldiers' readiness to attend the eArmyU were reanalyzed. eArmyU is a portal to online college level courses offered by a consortium of universities. The current study applies analytical procedures that provide methodological improvements to the original analysis. Specifically, exploratory and confirmatory factor analyses were sequentially used to select items and establish construct validities of the resulting scales. Next, a linear-based approach was applied to examine the scales' criterion-related validity. Scales measuring five theoretically relevant constructs – Motivation/Self-Determination, Intolerance of Ambiguity, Performance Goal Orientation, Need for Social Interaction, and Study Skills/Conscientiousness – were constructed from 53 items of the 90 original items. The scales have good psychometric properties and can reasonably predict the criterion of interest (multiple *R* adjusted for shrinkage is .23). Recommendations for future research that would further support the use of the questionnaire are made.

## Contractor Reports*

*These are additional reports submitted by contractors which are not listed in the previous categories

**CR 2006-01**
**Assessment of Unit Focused Stability (UFS) in the 172nd Stryker Brigade Combat Team**
Smith, M.D. October 2005. (AD B313116)

The U.S. Army Alaska's 172nd Stryker Brigade Combat Team (SBCT) is currently serving as the test unit for implementation of the newly developed UFS manning system. Under UFS, combat forces are formed, trained, and deployed as intact units, with the increased personnel stability and opportunity for accretive training serving to increase combat skills and cohesion levels above those normally achieved in conventionally/individually manned units. UFS implementation during the 172nd SBCT's 36-month operational lifecycle is being assessed to determine (a) the long-term impact of personnel stability on unit cohesion, (b) factors/conditions that enhance or detract from this cohesion over time, and (c) stability-related lessons learned for improving future UFS implementation. Assessment methods include the use of surveys, interviews, and focus group discussions. Year 1 assessment results are published in ARI Technical Report 1150 "Year 1 Assessment of the Unit Focused Stability Manning System" (ADA 428049). Year 2 results will be available 2nd Quarter of Fiscal Year 2006. The present report contains working notes compiled at the end of the current delivery order. These notes are subject to change once final Year 2 data are analyzed and the results documented.

**CR 2006-02**
**MAVEN-SA: Model-Based Automated Visualization for Enhanced Situation Awareness**
Wood, S.D., Zaientz, J.D., Holt, L.S., St Amant, R., Healey, C., Ensley, N., & Strater, L. November 2005. (ADA442461)

Report developed under a Phase I Small Business Technology Transfer Research (STTR) program contract for topic A04-T002. The research reported here explored methods for training battlefield visualization through human-computer visualization. The objective was to determine whether an adaptive visualization system that strongly leverages current findings in cognitive and perceptual psychology and in situation awareness could be designed that would improve Army schoolhouse training. The research approach had three focal points. First, we reviewed the extant literature on perceptual and cognitive visualization and mixed-initiative interaction as related to military situation awareness and decision making. Second, we developed a company level Military Operations in Urban Terrain (MOUT) scenario to inform our inquiry. Third, we developed a limited capability visualization prototype to test core approach concepts. The work conducted during Phase I lays the foundation for a Phase II plan to develop a usable schoolhouse tool for training battlespace visualization and to test the utility of this tool in an experimental setting.

**CR 2006-03**
**Proceedings from the ETS and Army Research Institute Emotional Intelligence Workshop**
Roberts, R.D., Minsky, J., Gade, P.A., Kyllonen, P.C., Zeidner, M., Matthews, G., & Strickland, W. January 2006. (AD M001936)

The purpose of the *Emotional Intelligence: Knowns & Unknowns* workshop was to bring together top researchers from around the world who specialize in emotion, individual differences in related constructs (e.g., personality, intelligence) and assessment to address empirical, conceptual, and practical limitations impeding scientific progress towards understanding emotional intelligence. The workshop was organized around five themes: Emotions: Multi-Disciplinary Perspectives; Emotions: Psychological Perspectives; Related Constructs; Assessment; and Applications. The workshop also included a keynote address by Paul Ekman on the topic of emotional skills.

**CR 2006-04**
**Electronic Performance Support for Future Trainers: A Conceptual Framework**
Leibrecht, B.C., Wilson, B.E., & Kiser, R.D. March 2006. (AD B316147)

This report presents the results of research on designing support tools for distributed trainers in the Future Force. It describes and characterizes a conceptual framework for electronic performance support capabilities for future observers/controllers/trainers. The report summarizes the framework's basic design parameters, exemplar functions, structure, and flow. It includes discussion of the lessons learned while working with the available concepts for the network-enabled Future Combat Systems. The conceptual framework is intended to help future investigational and design teams as they work to flesh out embedded training support capabilities.

**CR 2006-05**
**Battle Captain advanced team training (BCATT) development and assessment**
Kambe, G., Kline, K.F., Price, D.M., Grubb, G.N. August 2006. (ADB321985)

The research addressed in this report focuses on the need to train battle captains to work together as a team to accomplish collective tasks during the execution phase of a mission. The transitions occurring within the Army as well as the increased incidence of Joint, Combined, and ad-hoc teams make team training a critical issue to ensure a fully functional optimal environment for successful achievement of mission goals and objectives. To support training in resource constrained environments and to maximize the potential of this training for embedded training applications, the training model was instructorless. This report documents the insights and lessons learned from the Ground Systems Team Training (GSTT) research efforts to develop and assess the effectiveness of the prototype Battle Captain Advanced Team Training (BCATT) product using instructorless coaching and simulation-based practical exercises.

**CR 2006-06**
**Phase I final report on a "Scenerio-based leadership training for unit task force staff officers"**
Ong, J.C. August 2006. (ADB321243)

During this Phase I SBIR research project, we carried out a front-end training requirements analysis, focused on team performance problems caused by differences in knowledge and culture across Services. However, we also sought to understand other factors that affect Joint team performance in order to place the inter-Service issues in context and to identify training approaches that address this particular issue with other issues in an integrated manner. We used this understanding to identify training needs and promising training approaches that satisfy these requirements in a way that complements current training methods and tools. We found that team performance problems caused by inter-Service differences, although significant, were not necessarily dominant. Based on interviews with 20 instructors and staff at Joint Forces Staff College and U.S. Joint Forces Command J7 and on our review of prior research and analyses, we recommend the development of a computer scenario-based training that simulates the Joint planning process by staff officers at hypothetical command headquarters. We recommend development of a SCORM-compliant operational version of this system during Phase II that enables end user authoring and automated dialog with simulated characters to support training at JFCOM and other commands.

## Index of ARI Publications

### Abbreviations

| | | | |
|---|---|---|---|
| **TR** | **Technical Report** | **SR** | **Study Report** |
| **RR** | **Research Report** | **SN** | **Study Note** |
| **RP** | **Research Product** | **RN** | **Research Note** |
| **S** | **Special Report** | **CR** | **Contractor Report*** |

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Rifle marksmanship, Standard Qualification Course, live-fire prediction

**TR 1171**
**Direct and Indirect Predictors of Social Competence in United States Army Junior Commissioned Officers**
Social competence, social intelligence, social knowledge, social performance, constructed response format, video-based testing

**TR 1172**
**Longitudinal Examination of First Term Attrition and Reenlistment Among FY1999 Enlisted Accessions**
Manpower, personnel, training

**TR 1173**
**Understanding, Predicting, and Supporting Leader Self-Development**
Leader self-development, officer self-development, predicting self-development, organizational support for self-development

**TR 1174**
**Army Enlisted Personnel Competency Assessment Program: Phase II Report**
Behavioral and social science, personnel, job performance measurement, manpower

**TR 1175**
**Virtual Environment Cultural Training for Operational Readiness (VECTOR)**
Virtual environments, cultural familiarization, cognitive modeling, training, speech recognition, speech synthesis, game-based training

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Flight simulation, flight simulators, flight training, helicopter simulators, simulator motion perceptual control theory, transfer of training

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Army Recruiters, Noncommissioned Officer Leadership Skills Inventory, NLSI, recruiter production, online testing

**TR 1178**
**Wargaming Effectiveness: Its Conceptualization and Assessment**
Wargaming, distributed planning, future force, performance measures, planning skills, collaborative planning

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**Cooperative Interface Agents for Networked Command, Control and Communications: Phase II Final Report**
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Locus of control, sense of personal control, aviation, pilots, hazardous attitudes, risk management, perception of risks, decision making

**TR 1183**
**Review of Aviator Selection**
Aviator selection, selection, military, personality, psychomotor; cognitive, job analysis, review

**TR 1184**
**Instructional Features for Training in Virtual Environments**
Virtual environments, simulation, instructional features, instruction, training

**TR 1185**
**Personality Profiles of Experienced U.S. Army Aviators Across Mission Platforms**
Aviator personality, Army aviator; personality, neuroticism, extraversion, openness, agreeableness, conscientiousness, NEO-PI-R

**TR 1186**
**Leader Experience and the Identification of Challenges in a Stability and Support Operation**
Leadership, Expertise, experience, cultural awareness, stability and support operation, training, axl, power hungry

**TR 1187**
**Year 2 Assessment of the Unit Focused Stability Manning System**
Unit focused stability, cohesion, turbulence, unit manning

**TR 1188**
**Videogame-Based Training Success: The Impact of Trainee Characteristics – Year 2**
Games, training, computer games, desktop simulations, individual differences, videogame experience, videogame self-efficacy, goal orientation

**TR 1189**
**U.S. Army Aviator Job Analysis**
Aviator selection, selection, military; job analysis, job inventory

## RESEARCH REPORTS

**RR 1842**
**Computer-based Approaches for Training Interactive Digital Map Displays**
Computer based training, ground Soldier system, land warrior; training, digital skills, map reading, training assessment exploratory learning , guided exploratory training, guided discovery

**RR 1843**
**Multi-Echelon Distributed Army Leaders' Information Support Training (MEDALIST) II: Prototype Development and Recommendations for Future Training**
Distributed training, future force training, performance coaching, future combat system of systems, communications training, dynamic replanning

**RR 1844**
**Training Adaptable Leaders: Lessons from Research and Practice**
Adaptive performance, mental adaptability, interpersonal adaptability, leader adaptability, training adaptive performance, training Army leaders

**RR 1845**
**Deployment Consequences: A Review of the Literature and Integration of Findings into a Model of Retention**
Deployments, retention, reenlistment, organizational commitment, affective commitment, continuance commitment, normative commitment

**RR 1846**
**Training Impact Analysis for Land Warrior Block II**
Land warrior, training impact analysis, training resources, infantry school courses, individual tasks, training, analysis of alternatives, functional area analysis

**RR 1847**
**Preliminary Evaluation of a Novel Simulation-Based Tool for Training Rapid Decision-Making Skills**
Training, decision making, training simulation, discrete outcome-driven simulation, future force ,desktop simulation, authorable simulation, infantry operations, phase ii sbir

**RR 1848**
**Approaches to Managing Future Training**
future training, training management, embedded training

**RR 1849**
**Global Teams: Enhancing the Performance of Multinational Staffs Through Collaborative Online Training**
Scenario-based training, web-hosted training, distributed training, coalition operations, multinational forces

**RR 1850**
**Training Lessons Learned and Confirmed From Military Training Research**
Training, lessons learned, training technology, training evaluation, military training, training concepts, applied psychology

**RR 1851**
**Recruitment and Accession of Special Forces Warrant Officers**
Special Forces, Warrant Officer recruitment and accession, perceptions of Special Forces Warrant Officers, Special Forces career intentions

**RR 1852**
**Improving Troop Leading Procedures at the Joint Readiness Training Center**
troop leading procedures, joint readiness training center, job performance aids

**RR 1853**
**A Near Term Approach to Embedded Training: Battle Command Visualization 101**
Embedded training, visualization training, interactive multimedia instruction, human performance, progressive exercises, gate tests, learning management system, training fidelity

**RR 1854**
**Behaviorally Anchored Rating Scales for the Assessment of Tactical Thinking Mental Models**
Tactical thinking, cognitive skills assessment, assessment, cognitive skills evaluation, behaviorally anchored rating scales, scenario-based training assessment, cognitive training, decision training

**RR 1855**
**Army Green: Training Non-Tactical Problem Solving by Platoon Leaders**
Ethics, adaptive thinking, themes, platoon leaders, non-tactical, values, training, human performance

**RR 1856**
**Development of the Reactive Planning Strategies Simulation (REPSS)**
Collaborative planning, future force, future combat systems, mission command, command and control

**RR 1857**
**The Implementation of User Juries in the Development of Future Systems**
User jury, usability testing, Future Combat Systems, system evaluation

**RR 1858**
**Tailored Exercise Planning and Feedback for Digitized Units**
Digitization, digital training, digital proficiency, ABCS exploitation, proficiency levels, digital user skills, FBCB2, Blue Force Tracking

**RR 1859**
**A Simulation-based Tool to Train Rapid Decision-Making Skills for the Digital Battlefield**
Training, decision making, training simulation, outcome-driven simulation, future force, digital battlefield, authorable simulation, infantry operations, Army Phase II SBIR report

**RR 1860**
**What Squad Leaders Want to Know in Battle**
combat information requirements, information systems design, Future Force Warrior

**RR 1861**
**Sexual Harassment and Assault: Research Review and Recommendations**
Sexual harassment, sexual assault, rape, incidence and prevalence, organizational climate, job context, measurement, reporting, vulnerability and risk factors, impact, prevention, leadership, recommendations.

## RESEARCH PRODUCTS

**RP 2006-01**
**Select21 Experimental Selection and Classification Instruments**
Selection and classification, futuristic job/task analysis, job/task performance requirements, personnel testing, performance measurement

**RP 2006-02**
**MEDALIST: Communication Drills for Distributed Coaching**
Distributed training, Future Force training, Performance Coaching, Future Combat System of Systems, communications training, dynamic re-planning, training support packages

**RP 2006-03**
**Training Vignettes and Installation Guide for the Battle Captain Advanced Team Training (BCATT) Training Support Packages**
Team training, battle staff training, simulation-based training exercises, tactical, deliberate practice, Army Battle Command Systems (ABCS), training support packages

**RP 2006-04**
**Captains in Command**

Adaptive Thinking, Deliberate Practice, Instructorless Coaching, Vignette Training, Distributed Training, Think Like a Commander

**RP 2006-05**
**User's Guide for Tactical Thinking Behaviorally Anchored Rating Scales**
Tactical thinking, cognitive skills assessment, assessment, cognitive skills evaluation, behaviorally anchored rating scales, scenario-based training assessment, cognitive training, decision training

**RP 2006-06**
**Simulated Field Exercise (SimFX) Tool**
Training, decision making, training simulation, discrete outcome-driven simulation, future force, digital battlefield, authorable simulation, infantry operations, Army Phase II SBIR report

**RP 2006-07**
**SimFX Player User Guide and Tutorial**
Training Decision Making, Training Simulation Discrete Outcome-Driven Simulation Future Force Digital Battlefield Authorable Simulation Infantry Operations Army Phase II SBIR Report

**RP 2006-08**
**SimFX Author User Guide and Tutorial**
Training, Decision Making, Training Simulation, Outcome-Driven Simulation, Future Force, Digital Battlefield, Authorable Simulation, Infantry Operations, Army Phase II SBIR Report

**RP 2006-09**
**New Skills Training Plan for Map Functions and Passage of Lines on a Soldier System**
Digital skills, training, map functions, passage of lines, military training, Soldier Computer Systems

**RP 2006-11**
**Vignette-Based Training for Junior Leader Teams: Operation Enduring Freedom**
Vignette-Based Training, Military Operations on Urban Terrain (MOUT) Training, Operation Enduring Freedom, cordon and search training, mounted convoy training, patrol training, negotiations training

**RP 2006-13**
**Training Support Package Determination Methodology**
Training Support Packages, Future Force Training, training management, training requirements, training design

## SPECIAL REPORTS

**S 64**
**Fiscal year 2006 Program**
Mission, fiscal year 2006, behavioral and social science, R&D program

## STUDY REPORTS

**SR 2006-01**
**Development of a Prototype Self-Assessment Program in Support of Soldier Competency Assessment**
Behavioral and social science, test preparation, self-assessment, promotion testing

**SR 2006-02**
**The Army Training and Leader Development Panel Report: Consolidation Phase**
Leadership, leader development, operational assignment, performance evaluation, unit training, competencies, mentoring, professional development, culture, military education

**SR 2006-03**
**Advanced Individual Training Command and Cadre Perceptions and Attitudes Concerning the Training Soldiers Receive in Basic Combat Training**
Army AIT Command and Cadre Satisfaction, AIT Perceptions of BCT product, Army Basic Combat Training, Training Effectiveness, Effectiveness of BCT Program of Instruction, Army Basic Training Evaluation

**SR 2006-04**
**Evaluating the Contributions of Virtual Simulations to Combat Effectiveness**
Close Combat Tactical Trainer

**SR 2006-05**
**Evaluation of the U.S. Army Training & Doctrine Command (TRADOC) Warrior Transition Course (WTC)**
Blue to Green (B2G), Warrior Transition Course (WTC), Army Soldier acquisition program, initial entry training (IET), case study methodology, basic combat training (BCT), database development, survey development, qualitative analysis

**SR 2006-06**
**Pilot Study to Examine Training Eligibility Standards**
Advanced Individual Training performance, Training eligibility standards, Army Aptitude Area composite score, MOS cutoff score

**SR 2006-07**
**Effects of Motion on Skill Acquisition in Future Simulators**
Training, Motion-based simulation, Human Performance, Simulator Sickness

**SR 2006-08**
**Incorporating Lessons Learned into the Army Competency Assessment Prototype**
Behavioral and social science, personnel, job analysis, manpower, assessment

**SR 2006-09**
**Assessment of the FY 05 Basic Officer Leader Course (BOLC) Phase II: Instructor Certification Program (ICP) and Single-Site Initial Implementation**
Basic Officer Leader Course (BOLC II), Officer Education System, Initial Entry Training

## STUDY NOTES

**SN 2006-01**
**Concurrent Validation of the Noncommissioned Officer Leadership Skills Inventory (NLSI) for U.S. Army Drill Sergeants**
Army Drill Sergeants, Drill Sergeant Assessment, Drill Sergeant, NLSI

**SN 2006-02**
**Interviews with Junior Officers to Identify Retention Issues**
Junior Officer, Retention, U.S. Military Academy, Reserve Officer Training Corps

**SN 2006-03**
**Evaluation of Alternative Aptitude Area (AA) Composites and Job Families for Army Classification: A Reply**
Military personnel classification, Army Aptitude Area (AA) composites, Armed Services Vocational Aptitude Battery (ASVAB)

**SN 2006-04**
**Update of U.S. Army Research Institute's Officer Personnel Research Data Bases for 2003 and 2004**
Army commissioned officers, military personnel data, Army officer longitudinal data

**SN 2006-05**
**Assessing the Value of Army Continuing Education System Personnel to the Overall Benefits the Army Accrues**
Army Continuing Education System (ACES), value, fiscal pressures, ACES participation, budget cuts, eArmyU, personnel reductions, staffing levels, staff requirements, staffing cuts, Army readiness, Army retention

**RN 2006-01**
**Station Commander Job Analysis and Preliminary Test Validation Results**
Army Station Commanders, Station Commander Assessment, Station Commander Performance, Army Recruiting

## RESEARCH NOTES

**RN 2006-02**
**Influences of Work-Life Support of Officers' Organizational Commitment and Negative Work-Family Spillover**
Work-life support, officers, work-family spillover, organizational commitment, affective commitment, continuance commitment

**RN 2006-03**
**List of U.S. Army Research Institute Research and Technical Publications**
**Fiscal Year 2005 October 1, 2004 to September 20, 2005 with author and title index**
research, technical, publications

**RN 2006-04**
**Reanalysis of Validation of Tool to Assess Readiness for Online Learning**
eArmy U, EArmyU, Prep Questionnaire (EAPQ), Online learning, validation, learning readiness readiness for online learning, Army Continuing Education System (ACES)

## CONTRACTOR REPORTS

**CR 2006-01**
**Assessment of Unit Focused Stability (UFS) in the 172nd Stryker Brigade Combat Team**
Unit Focused Stability, Force Stabilization, Individual Replacement System, Cohesion personnel, turbulence

**CR 2006-02**
**MAVEN-SA: Model-Based Automated Visualization for Enhanced Situation Awareness**
Training, Battlefield Visualization, Information Visualization, Military Operations in Urban Terrain, Perception, Situation Awareness, Command and Control

**CR 2006-03**
**Proceedings from the ETS and Army Research Institute Emotional Intelligence Workshop**
Emotional Intelligence, emotions, individual differences

**CR 2006-04**
**Electronic Performance Support for Future Trainers: A Conceptual Framework**
Future training, embedded training, Electronic Performance Support System, training support, Future Combat Systems, distributed exercises

**CR 2006-05**
**Battle Captain advanced team training (BCATT) development and assessment**
team training, simulation-based training exercises, deliberate practice, instructorless coaching

**CR 2006-06**
**Phase I final report on a "Scenerio-based leadership training for unit task force staff officers"**
Joint Staff Officer, Inter-service, scenario, training, education, dialogue, Artificial Intelligence SBIR Phase I Report

## FY 2006 Books and Book Chapters


Durlach, P.J., Neuman, J.L., & Bowens, L.D. (2006). Evaluation of a touch-screen based operator control interface for training and remote piloting of a simulated micro-unmanned aerial vehicle. In N. J. Cooke, H. Pringle, & H. Pederson, & O. Connor (Eds.), *Human Factors of Remotely Piloted Vehicle* (pp. 165-177). *London: Elsevier.*

Gade, P. A., Kaplan, J. D., & Dudley, N. M. (2006). The U. S. Army Research Institute for the Behavioral and Social Sciences. In A.D. Manglesdorff (Ed.), *Psychology in theService of National Security* (pp. 185-197). Washington, D.C.: American Psychological Association.

Gade, P. A., Costanza, D.P., & Kaplan, J. D. (2006). Reviewing grant and contract proposals. In R. S ternberg (Ed.), *Refereeing in Psychology: Reviewing Journal Article Submissions, Book Chapters, Book Proposals, and Grant Proposals.* Washington, DC: American Psychological Association.

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**FY 2006 Journal Articles**

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Mayo, M., Singer, M. J., & Kusumoto, L. (December, 2005). Massively Multi-Player (MMP)Environments for Asymmetric Warfare. *Proceedings of the 27th Interservice/Industry Training Systems and Education Conference, Arlington, VA, CD-ROM*: National Training Systems Association.

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**FY 2006 Conference Papers**

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Barnett, J.S., & Meliza, L.L. (2005, November). *Net-Centric Warfare Systems: Tailored Feedback for Training.* Paper presented at the DoD Human Factors Engineering Technical Advisory Group (HFE-TAG) 55th Meeting, Baltimore, MD.

Barnett, J.S., & Meliza, L.L. (2005, November). *Channeling, Managing, Assessing, and Exploiting Information in Networked Environments*. Paper presented at the DoD Human Factors Engineering Technical Advisory Group (HFE-TAG) 55th Meeting, Baltimore, MD.

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Cianciolo, A. T., Heiden, C. G., Prevou, M., & Psotka, J. (2005, November-December). *Evaluating Army Professional Forums: Innovations in Understanding and Assessing Effectiveness*. Paper presented at the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC), Orlando, FL.

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Singer, M.J., & Kusumoto, L. (2006). *Developmental Evaluation of a Distributed Online Simulation.* Paper presented at the 2006 American Psychological Association, Division 21 and 19 and HFES Potomac Chapter Annual Symposium on Applied Experimental Research, George Mason University, Fairfax, VA.

Solberg, J. (2006, August). *Researching Serious Games: Asking the Right Questions.* Paper presented at the Intelligent Tutoring in Serious Games Workshop, Marina del Rey, CA.

Stewart, J.E. (2006). *Locus of Control, Attribution Theory, & the "Five Deadly Sins" of Aviation.* Paper presented at the DoD Human Factors Engineering Technical Advisory Group (HFE-TAG) 55th Meeting, Las Vegas, NV.

Taylor, T., & Siebold, G. (2006, October). *Cohesion and Soldier Career Intentions Over Time*. Paper presented at the 48th Annual Meeting of the International Military Testing Association (IMTA) conference, Kingston, Ontario, Canada.

White, L., Young, M., & Hunter, A. (2006). T*he validation of theAssessment of Individual Motivation (AIM).* Paper presented at the 21st annual conference of the Society for Industrial and Organizational Psychology (SIOP), Dallas, TX.

White, L., Young, M., Hunter, A., Stark, S., & Drasgow, F. *New Approaches for Measuring Self-Report Temperament Constructs in 'High Stakes' Military Testing*. Paper presented at International Conference of Applied Psychology, Athens, Greece.

Zaccaro, S., Hildebrand, K. and Herman, J. (2006, July) *The role of leadership processes in team adaptation.* Paper presented at the Interdisciplinary Network for Group Research (INGroup) Conference, Pittsburgh, PA.

Zaientz, J. D., Holt, L. S., Wood, S. D., Healey, C.G., Amant, R. S., Strater, L., & Hyatt, J. (2005). *Enhancing Decision Making by Explicitly Training Battlefield Visualization Skills.* Paper presented at the Interservice/Industry Training, Simulation, and Education (I/ITSEC) Conference, Orlando, FL.

Zbylut, M. L., Ward, J. D., & Vowels, C. (2006, August). *Challenges and approaches to evaluating a leadership intervention for Army officers.* Paper presented at the annual Academy of Management Conference, Atlanta, Georgia.

**FY 2006 Poster Sessions**

Hill, R. W., Lane, H. C., Core, M., Forbell, E., Kim, J., Belanich, J., Dixon, M., & Hart, J. (2006). *Pedagogically structured game-based training: development of the ELECT BiLAT simulation.* Poster session presented at the 25th Army Science Conference, Orlando, FL.

Horn, D. B. (March, 2006). *Patterns of Videogaming Experience: Implications for Game-Based Training*. Poster session presented at the APA Midyear Symposium. Division 19: Military Psychology, and Division 21: Applied Experimental and Engineering Psychology, Fairfax, VA.

Lytell, M.C. & Sims, C.S. (May, 2006). *Stimulus versus Organizational Influences on Gender Harassment Severity of Females and Males.* Poster session presented at the annual meeting of the American Psychological Society.

Mullin, L. N. (March 2006). *Interactive navigational learning in a virtual environment: cognitive, physical, and attentional components*. Poster session presented at the APA Midyear Symposium, Division 19: Military Psychology, and Division 21: Applied Experimental and Engineering Psychology, Fairfax, VA.

Orvis, K. A., Horn, D. B., Belanich, J., Mullin, L. N., & Solberg, J. L. (March 2006). *Impact of level of difficulty on motivation and performance in videogame-based training*. Poster session presented at the APA Midyear Symposium, Division 19: Military Psychology, and Division 21: Applied Experimental and Engineering Psychology, Fairfax, VA.

Schaab, B. (2006, November). *Influence of Bogus Intelligence Reports on Confidence in Subsequent Reports*. Poster presented at the 25th Army Science Conference, Orlando, FL.

Sims, C.S., Drasgow, F., & Fitzgerald, L.F. (May, 2006). *Exploring the Longitudinal Role of Psychological Climate in Sexual Harassment.* Poster session presented at the annual meeting of the Society of Industrial and Organizational Psychology.

Tucker, J. S., & Pleban, R. J. (2006, May). *Adaptability: A distinct dimension of leader performance?* Poster session presented at the annual meeting of the Society for Industrial and Organizational Psychology. Dallas, TX.

Tucker, J. S., Sinclair, R. R., Mohr, C. D., Adler, A. B, Thomas, J. L., & Salvi, A. D. (2006, May). *Multilevel effects of occupational stress on Soldiers' counterproductive work behavior.* Poster session presented at the annual meeting of the Society for Industrial and Organizational Psychology (SIOP), Dallas, TX.

Young, M.C., & White, L.A. (Nov, 2006). *Preliminary Operational Findings from the Army's Tier Two Attrition Screen (TTAS) Measure*. Poster presented at the 25th Army Science Conference, Orlando, FL.

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